PHARMACEUTICAL HISTORIAN

Vol 21 No 1
March 1991 £1

Newsletter of the BRITISH SOCIETY FOR THE HISTORY OF PHARMACY. Established 1967
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Contents

Diary Dates

1991

March 13
The Foundation Lecture. Mr K. Holland - "The Devoted Industry: Origins and Development of the Pharmaceutical Manufacturing Industry". Admission by ticket only (free). †

April 5-7
BSHP Spring Conference. Venue: Hotel Ibis, Greenwich, London. Application and registration forms will be issued from 36 York Place, Edinburgh EH1 3HU. Annual General Meeting April 6, 10.00am.

May 1
Miss E.R. Lewis - "Mr Earl's Medical Shop" - some 18th century fittings from a Winchester Pharmacy. †

May 22
Afternoon visit to Kew Gardens, London. The Materia Medica collection. (Details to be confirmed).

September 12
British Pharmaceutical Conference at Liverpool. BSHP session 2.00pm.

† Meetings to be held at R P S G B, Lambeth High Street, London SE1 7JN. Commencing at 6.30pm. Coffee and biscuits 6.00pm.

Spring Conference

The Conference will celebrate the 150th anniversary of the founding of the Royal Pharmaceutical Society of Great Britain

Programme

Friday April 5

Afternoon	Registration
6.30 pm	Dinner - Address of Welcome - Dr. M.P. Earles, President. Talk on Greenwich and the environs

Saturday April 6

9.00 am	Breakfast
10.00 am	Annual General Meeting of the British Society for the History of Pharmacy
11.00 am	Coffee
11.30 am	Coach to 17 Bloomsbury Square (Home of the British Pharmaceutical Society of Great Britain until September 1977). Delegates make own arrangements for lunch in the Bloomsbury area
2.30 pm	Coach to Royal Pharmaceutical Society's House at 1 Lambeth High Street from Bloomsbury Square
3.00 pm	Symposium session "Pharmacy in the 1840's". Speakers: Dr. J.G.L. Burnby, Dr. W.E. Court and Mr A.F.P. Morson
6.30 pm	Reception and Buffet Supper
8.00 pm	Coach to Hotel Ibis

Sunday April 7

8.30 am	Breakfast
9.30 am	"Early Ether Anaesthesia: the Patients" by Dr. Richard H. Ellis, St. Bartholomews Hospital

https://doi.org/10.24355/dbbs.084-201803060820

10.15 am "Pharmacy in the Netherlands in the 1840s" by Dr. Annet I. Bierman
11.00 am Coffee
11.30 am "Photography in the 1840s" by Mr. Nigel Tallis (This talk will include a demonstration of the salted paper print process invented by Fox Talbot in 1841 - weather permitting, photographs will be taken in this medium)
12.15 pm Conference closes
12.30 pm Lunch

Sponsorship of the Conference by Merck and Co. Inc. is gratefully acknowledged.

The Romantic History of a Medicine

By Mervyn Madge

Malaria is said to be increasing by an estimated one million new cases a year. Areas previously cleared are now being re-invaded. It is apparent that the brilliant discoveries of the chemical antimalarials in controlling the disease are becoming less effective. The mosquito, anopheles, the vector, has become resistant to the synthetic drugs developed during World War 2. When the Japanese armies were overrunning the quinine producing areas, Java especially, threatening India, precluding any attempt at recovering these parts of S.E. Asia.

Today there has been a fall back on the old remedy quinine, apart from some successful trials of a Chinese herb. Not many people realise the romantic history of quinine and the link with an Englishman called Charles Ledger.

Peru was discovered in 1513, and during a period of over a hundred years the Europeans noticed that the native people used a bark of a tree against fevers which became recognised in 1630.

The earliest records show that it was first used as a cure in that year.

The name of the tree Cinchona (succirubra) has an alledged historical romantic connection. It is said to have been derived from a Countess of Chinchon who was cured of a fever by a powder made from the bark. It became known as the Pulvo de Contesa and enjoyed a considerable and expanding reputation. However modern study of the diaries of the Count show no evidence, either of himself or the Countess being cured or using it.

The bark became extremely popular and large distribution was made through the offices of the Jesuit priests becoming known as Jesuits' bark or Peruvian bark.

We now come to the Englishman, Charles Ledger. Like many of that time interested in trade as a means to wealth he visited Peru in 1836 to trade in wool and cinchona bark. A man of imagination and ideas which did not always have a successful outcome. He conceived a brilliant scheme to augment or improve the Australian wool industry by importing a flock of alpacas. Unfortunately this was forbidden by Peru, but he had a fertile mind. Secretly breeding alpacas with llamas he drove the animals across the Andes to Chile. A great journey by any comparison, accompanied by an Indian guide called Manuel, the flock living off the land. It took five years. It ended in bureaucratic failure, the bane of all importers and exporters. Nevertheless Charles Ledger was not dismayed at the outcome and turned his attention to cinchona bark. It happened that both the British and Dutch governments at that time were anxious for botanists to send good cinchona seed. They would be planted in their suitable overseas possessions and prevent a monopoly in quinine.

Charles Ledger with his expertise knew good bark and he remembered his journey across the Andes, especially the S. Andes where he had come across the finest cinchona trees he had ever seen. He wrote to Manuel asking him to collect some seed. Time marched on and this took four years. Receiving the seed he sent them to his brother George in London.

It was too late, the British government was now satisfied with its plantations in India and not interested in a new variety. Ledger's ideas collapsed again.

Eventually George was introducted to the Dutch Consul and a small purchase made for a plantation in Java.

Years later when the trees had grown the bark was analysed. It proved to have a higher quinine content than others. It was Ledgers skill and expertise that ensured sufficient production of quinine to meet the world demand and contribution to world health.

And Charles Ledger? No honours, no knighthoods, no wealth for him. He died poor and forgotten in an unmarked grave in Australia in 1905.

There it remained until a Dutch quinine manufacturer placed a commemorative plaque saying "He gave the world quinine"

However Charles Ledger is not forgotten and never will be. His name was given to the specie Cinchona ledgeriana.

Overseas Congress

Members are invited to the 16th Congress of the Polish Society of History of Medicine & Pharmacy, September 19-22 in Kraków.

Details from Assist. Prof. Zdizislaw Gajda, 7 Kopernika Street, 31-034 Kraków. Phone: 22-21-16.

https://doi.org/10.24355/dbbs.084-201803060820

Book Reviews

Pharmacy. An Illustrated History
David L. Cowen and William H. Helfand.
Harry N. Abrams
Inc. New York 1990. ISBN 0-8109-1498-0
Price on application

David L. Cowen, Emeritus Professor of History at Rutgers University New Jersey and William H. Helfand, well known collector and expert on the prints, caricatures and ephemera related to pharmacy and medicine have collaborated to product a book, which fits the O.E.D. definition of a 'coffee table' book, i.e. large, illustrated and expensive. It takes as its subject pharmacy from ancient times to the present day. Six of the eleven chapters are devoted to the 19th and 20th centuries and review, among other things, science and technology, the pharmaceutical establishment, the rôle of the industry and the pharmacist in the 20th century.

The text supports 308 illustrations including 151 plates in full colour. The illustrations have been drawn from sources ranging from archaeological artefacts to photographs of late 20th century industry. They include pharmaceutical vessels and equipment, pharmacies, book illustrations, portraits, pictures and prints, caricatures and advertisements.

The material presented may be expected to satisfy a wide range of interests and tastes. From Britain is the Cruikshank caricature on homeopathy. A young and tiny woman asks for a hundred-thousandth part of a grain of magnesia and receives the reply "Very sorry, miss, but we don't sell anything in such large quantities."

A list of sources for each chapter is appended together with an index for text and illustration. Each illustration has a caption giving the source and some supporting information.

A History of London Robert Gray. 1989
Century Hutchinson Ltd £7.95

For one whose study of history has been minimal this absorbing book is a delight. As Robert Gray says "London is a town which invites discovery". It became Londinium historically shortly after the arrival of the Romans in Britain AD43., but on the Pre-Historic Time scale the ground upon which London is built is relatively young and archaeological finds have been unearthed at different levels.

The Gravels on which London was built were a far more satisfactory basis than the muddy swamps of the Thames river basin. The first crossing of the river was as far downstream as possible, and the first bridge, constructed of wood, possibly with supports of stone, was primarily for the transport of Roman Legions in AD43, these soon to be followed by traders with packhorses and "London became famous for Commerce and crowded with Traders", and the town of London was developing on the gravel hills of Ludgate Hill and Cornhill. The earliest reference to London Bridge is from 10th century records and possibly this was the first stone built bridge. London was then well established as the leading British port not only with goods to and from over the seas, but also inland transport. A flat bottomed boat of Roman origin has recently been uncovered, with its cargo of Kentish Stone, well suited to Bridge building. It was at Black Friars this barge was found, clearly wrecked on the bed of the Thames. Black Friars has for us pharmacists particular interest for its association with the Society of Apothecaries.

At the end of the book an Appendix gives the names of the Kings and Queens of England from Edward I (1272) and relates them to the areas and the buildings of the time. What caught my eye was Bloomsbury Square, known to many pharmacists to whom 17 Bloomsbury Square was for many years the home of the Pharmaceutical Society. I note that the building scheme of the Earl of Southampton for Bloomsbury Square appears to be an early plan to build town houses of a particular plan round a central square replacing the haphazard evolution of housing to that date, this Estate Development dating from the 17th century in the time of Charles II.

This was a time of great and inspired building and Christopher Wren's Banqueting Hall in Whitehall and the Queens House in Greenwich by Inigo Jones are superb and remain for us to see today.

In the time of Henry VIII Greenwich was the foremost Palace of England and Elizabeth I was born there. The Palace was rebuilt in the time of James I and at some date it was a school, and Wren's instructions were to build a hospital for 'Sick and Aged Sailors' and the Royal Naval was created in 1694. It was "simply stunning to behold equalled in magnificence only with St. Pauls." It remains so today as the Royal Naval College, seen from across the Thames, or walking through the magnificent colonades to the Painted Hall.

Of such is the History of England, and in the words of a Frenchman – "In England, the Kings are lodged like invalids at the Palace of St James and the invalids of the Army and of the Navy like Kings of England at Greenwich". My sincere and grateful thanks to Robert Gray for such enlightenment. **E L-S**

Dictionary of Protopharmacology: Therapeutic Practice, 1700-1850. Worth J. Estes, Science History Publications/USA

Students of historical medical practices will find this a valuable "tool" with nearly 3000 entries dealing with items used by physicians before 1850.

The author has provided a detailed chapter on the directions for use of the dictionary and a useful section of "general references," but doubtless it will become a useful reference book after the initial attraction has been surmounted.

https://doi.org/10.24355/dbbs.084-201803060820

The Career of John Watts, Apothecary

By Dr.J.G.L. Burnby

The story of the battles between the London Company of Apothecaries and their wayward gardener and "botanick", John Watts, at the Chelsea Physick Garden are well known but other details of Watts' career have received no attention. It does however deserve closer study.

John Watts was the son of a grazier of the same name in Ashby de la Zouch, Leicestershire, who on 1 July 1662 was apprenticed to Henry Sykes, citizen and apothecary of London. Sykes, a future master of the Society, would undoubtedly be known to the Watts family as he too hailed from Ashby, and has gained his Freedom only seven years earlier.[1] Watts' Freedom dates from 5 July 1670.

The Apothecaries' Society in 1673 leased land by the Thames at Chelsea with the idea of making there a "physick" garden. The following year, in order to keep it safe from depredations, a wall 76 rods long was built round it; amongst the contributors were Mr Sykes and Mr Watts.[2] In 1676 the Court made an agreement with the widow of William Gape, late Master of the Society, that they would take over the lease of her garden at Westminster for the remaining fifteen months on generous terms, in return for which they would be at liberty to remove the plants to Chelsea. The man responsible for the Westminster garden was Edward Morgan who had been visited there by both John Evelyn and John Ray. A knowledgeable man, it seems the Society planned to make him gardener and curator of their Chelsea garden but in the autumn of 1677 the minutes relate that he asked for an increased "consideration" for "keeping the garden and for his (sic) plants" and the scheme fell through. The garden was now in danger of being run purely for the profit of members of the Apothecaries' Society and not for the scientific investigation of plants. It is at this point that John Watts steps in.

At the Court of 21 January 1680 (Minutes, MS 8200/2, f.253v.) Mr Watts was called in "... and desired to make his proposals which he delivered in writing which was openly read". His proposal was that, "if the company shall think still to entertain him to manage the garden", that he should receive £50 a year and he would need one or two men "to dig, carry dung, water the ground and weed", all of which including the cost of glasses, pots, mats and dung would probably amount to another £50 a year. He would plant "with foreign as well as native plants" and suggested that the arrangement should last for three years, when he would, if the Company thought fit "accept the fruit" for salary and defray the charges for £30 a year.[3]

By no means were all the members of the Court in favour of dismissing the present gardener, a Mr Pratt who received a mere £30 a year, and replacing him with John Watts, and fought against the proposal vociferously. Nevertheless it was ordered that Watts was "to undertake the Ordering, management and Care of the Companys Botanick Garden att Chelsey upon these proposals he hath delivered." The next order made on 27 February 1680 seems to sugest that Watts was already using a part of the garden. He was told to bring in a catalogue of all his plants as "hee hath in the garden that the Company may see what they are and their value and whether they bee other than what they have already" At the same time Mr Pratt was also ordered to bring in a catalogue, "... of all such plants as hee hath in the Garden that they may be inspected, that the Court may judge what Mr Watts doth bring in more than are already in the Garden and what they are worth." Later it was reported that four hundred plants were missing from Pratt's list.

It was not long before the fame of the Chelsea garden spread not only throughout England but Europe as well. Within two years a greenhouse with a stove had been erected which Watts was busily stocking with exotics, in particular those obtained by James Harlow whom he had sent on a plant-collecting expedition to Virginia. There is no doubt Watts was extravagant. Soon he had six gardeners instead of the expected one or two, whilst John Evelyn relates that his method of indirect heating was so effective that doors and windows could be left open even in the hardest frosts! Not surprisingly financial problems soon arose. He neglected to pay his house rent, owed his ex-master, Henry Sykes, money, and it was said, he sold surplus plants on the side. Totally undismayed, Watts merely told the Court that the Company owed him £140 for out-of-pocket expenses, and in the end they so far capitulated as to increase his salary to £100 a year, and a new seven year agreement was signed in August 1685. The famous Dr Hermann, professor of botany at Leyden, visited the garden and suggested that Watts should travel to Holland in order to effect a suitable exchange of plants. This he did but as the Society only gave him £10 for the trip it must have been largely at his own expense. George London, gardener to the Bishop of London also made an expedition to the Netherlands in the summer of 1685. On 7 August he wrote to the apothecary Samuel Doody from Leyden telling him of his botanical adventures, of Indian nasturtiums with leaves "...as broad as four five shilling pieces laid by one another, and ye flowers six times bigger than the common nasturtium", of plants from the Caribbean, and of a Cereus or Torch Thistle fifteen feet high. In a later letter this time to Leonard Plukenet, the Queen's botanist and superintendent of the Hampton Court Gardens, London rejoiced that he had, "... been as diligent as possible to procure specimens as i (sic) could i belaeve yt i shall sett up for my Lord and myselfe against Mr Watts for I have

https://doi.org/10.24355/dbbs.084-201803060820

collected a very fine collection of new plants near 40 sorts." He went on to say that he had one specimen of each of the fine plants Mr Watts had collected, besides others which he had obtained without Watt's assistance, adding, in case Watts alleged otherwise, "I shall only goe near to take my leave of him. In every place where i have been in yt he had been there they give him ye character of a cheat with so much much passion yt they threaten if they could meet him yt they could score his face to pieces, for ye further of it is he hath bubbled them with promises." (Sloane MSS., MS 4062 f.214, MS 4067, f.32.) In spite of this vituperation, George London and John Watts became firm friends; in a codicil to his will Watts left £50 to his godson, John London son of George. By September 1689 the master and wardens of the Society were receiving reports that Mr Watts had not been seen in the garden for some weeks and that plants were being stolen. His brother Richard stoutly maintained that no plants were missing but did admit that John Watts had not been around for some time.[4] Indeed Watts had other irons in the fire just at the time.

Gibson in his "Account of several gardens near London" published in 1691 gives an interesting description, "Mr Watts' house and garden made near Endfield (sic) are new but the garden for the time is very fine and large and regularly laid out with a fair fish pond in the middle. He built a greenhouse this summer with three rooms (somewhat like the Archbishop of Canterbury's), the middle one with a skylight above and both of them of glass on the foreside with shutters within and the roof finely covered with Irish slate." This must certainly have engaged John's energies but does not explain why in March 1690 James Petiver should write to Samuel Brown at Fort St. George (Madras), "I find you design to send yr collections to Mr Watts at Chelsey, but he hath been of late and at present is under such circumstances that he dares not appear in the Garden here himself for a quarter of a year together... at present the Physick Garden is but slenderly stocked ...and is at a low ebb." (Sloane MSS. MS. 3332, f.7v.)

All connections with the Physic Garden were severed in August 1692 when Watts handed over to Samuel Doody and a committee was established to decide which plants he was to be allowed to take away. (Apothecaries' Society Minutes, MS 8200/2 ff. 348-9) He had many visitors to his fine new brick-built house and garden. When he was ill Petiver and George London rode over to see him. (Sloane MSS. MS 4067 f.34).

Another visitor was Leonard Plukenet who wrote in his book "Amaltheum" (p.143) that he had seen in the garden of "Watsii mercatoris Enfieldiae, a very fragrant melon bearing fruit like apples with a variegrated bark from Persia." Plukenet's herbarium also benefitted from Watt's generosity as may be seen on folios 133-4 where he has written, "ex China Merchant, Watts." It can thus be seen that John Watts was not practising as what we might term a community apothecary, whether it was in medicine or pharmacy, but was now a merchant trading as far away as the newly opened market of China. He was now a merchant, and it was so that he described himself in his will. (P.C.C., Prob.11-466, f.142.) He died in his early sixties and was buried on 25 October in Enfield church where there is a mural tablet to his memory. From his will we learn that he and James Ayrey, another well known botanist of the period, were in business together probably in the parish of St. Botolphs without Aldersgate, to whom he bequeathed £2,000 for his "good service and integrity in the management of my affairs" and as an encouragement to recover the money owed to Watts. John Watts had never married and his sister was the beneficiary of the bulk of his estate for her lifetime but on her decease it was to pass to St Bartholomew's Hospital. Elizabeth died in 1716 and the bequest, then amounting to £7,200, was used to buy an estate in Warwickshire; in 1752 the governors called a new ward, Watts Ward.

Elizabeth Watts had become the second wife of Francis Camfield of St. Bartholomew's the Great and Cheshunt in June 1677. Camfield was a member of the Grocers' Company, a very wealthy man, probably an importer of tobacco then much used medicinally, and like Ayrey a Quaker and very active in his faith. Aged eighty he died in September 1708 and from his will it is apparent that in October 1688 he and Elizabeth and her brothers, John and George Watts, merchants, with others were engaged in a property deal at Cannon Row, Westminster, comprising a massuage and a wharf. (P.C.C., Prob. 11-504, f.232)[5] Thus it can be seen that John Watts was a merchant some years before be became the 'botanick' of Chelsea.

John Watts belonged to that comparatively small but wealthy group of apothecaries who traded overseas such as James Whitchurch, friend of Hooke, with shares in the East India Company, and Joseph Cruttenden whose interests lay in the West Indies and the future United States of America. Without doubt a good businessman and a practical man, Watt was also an observant scientist, for in 1688 he wrote to Edmond Halley, astronomer and clerk to the Royal Society, of his observations which had made him well aware of the importance of sunlight to green plants.

Notes

1 Henry Sykes son of Henry, had been bound to Peter Culley, a well known apothecary of Reading and London, for eight years from 3 May 1647. (MS 8200/1 f.460.)

2. It is possible that this Mr Watts was Charles Watts, another apothecary of the Society, but this is unlikely as at no subsequent time does he seem to have taken any interest in the Chelsea garden

3 Although the garden certainly grew large quantities of fruit, cherries, plums, apricots and peaches, it is likely the word is used here in the sense of profit or gain

4. In June 1684 John Watts expressed a wish to bind his brother apprentice to him, but the Master of the Society said this was not possible as the would-be apprentice was over thirty years of age. Nevertheless, Richard Watts was very shortly afterwards bound to his brother

5 It is interesting to note that amongst Francis Camfield's many properties, he owned four messuages in Goose Alley, Bow Lane, two of which in about 1720 were leased to "William Dicey & Co and Benjamin Okell" as a warehouse and factory for the production of Bateman's Drops (Northamptonshire Record Office, MS YZ 8989.)

https://doi.org/10.24355/dbbs.084-201803060820

Early Advertising and Media

(Part One)

By A. Wright

To begin at a precise period of time is an aim of historians, but it poses an exceptional problem when it can be argued that advertising is older than the human race. Thus on this occasion we retreat in time to the Garden of Eden and maybe beyond.

That Garden leads to other biblical references - the exhibition of the Ten Commandments mentioned in Exodus around 1290 BC, the Babylonian Inscriptions chronicled around 626 - 556 BC could also be included. Then there was the writing on the wall at Belshazzer's Feast, about which there is no certain date - if it really did happen - but was written about by Daniel during the 168 - 165 BC period. But one of the most intriguing is contained in the 2nd Book of Samuel, Chapter 1, verse 20 in David's lament

"Tell it not in Gath

Publish it not in the streets of Askelon"

That was about 1000 BC, i.e. approximately 3000 years ago, and it is possibly one of the, if not the earliest examples of news or press censorship.

The Ancient Greeks were aware of the value of advertising. They had official criers to proclaim details of new laws. Apparently they also could be hired - presumably for a fee - by traders desirous of publicising their wares.

In Roman times means of communication had developed - there we can find the precursor of the modern poster, hoarding. The Romans provided white washed walls on which could be written, where the public could see, announcements of games, contests and official orders. Pompeii, "where time stood still" in AD79, and discovered in 1748, provides such examples and also trade signs above "shops" and workplaces. Inscriptions in chalk or charcoal have been found near the doors of a Greek theatre and a Roman circus.

But such advertising requires a standard of literacy by the beholder. Where that was lacking it was the town cryer who supplied the bridge between those with information to transmit and their target.

In later years in these islands beacons on headlands advertised a much more urgent message.

Developments in advertising have been largely governed by progress in the art of printing. Although relief printing was in use in China during the 9th century AD, it was not developed in the West until the the 15th century.

Relief printing was the first process to be used where ink is applied to a raised surace and then - as in the common rubber stamp - by pressure an image is transferred to paper or other media. In the beginning the raised surface was that of a wood cut or wood engraving, which was carved removing the wood where the areas of the final print were to remain white. It was a process developed before the manufacture of paper and was used for applying repetitive designs on textiles. Most of the early "cuts" or "engravings" were made in the low countries. The work was carried out by artisans who took the original artists' drawings and converted them - in reverse - so that they could be used for printing. Sometimes the designs were painted or

a European woodcut (1483) of St. Christopher and the infant Christ.

scratched on wood and left for the "cutter or engraver" to do the rest of the work.

The earliest printing presses were developed from wine or linen presses, using pressure supplied by an upright screw to ensure the transference of the ink on the wood cut or engraving to the paper.

Two contrasting "pastimes" of the Middle Ages - pilgrimages and card playing combined to ensure the development of print.

Indulgences or pardons could be gained by visiting holy places where single sheet prints were sold to pilgrims. The prints were often simple outlines of saints, etc. probably executed and printed by monks. The next logical step was to include the name of a saint or add a short prayer. Then followed the gathering of individual pages into books - blockbooks - available during the 15th century.

It is easy to imagine the labour entailed in cutting the images and the text in reverse. Yet although by then the movable types were available, the types were softer and less durable than the wood blocks which continued to be used in spite of being difficult to correct.

Typographic printing

The invention of typographic printing in Europe is credited to John Gutenberg of Mainz in the Rhine valley. He was a goldsmith and gem cutter accustomed to working in metal and in relief. He devised a mould which ensured the manufacture of uniform type.. each

Abstract from a paper given to the society on May 3, 1989

https://doi.org/10.24355/dbbs.084-201803060820

letter being of consistent height. At the same time he found a suitable alloy for the type. He adapted the wine press to ensure an even impression and also found a suitable ink. Thus in the early 1440's he introduced a method of printing that changed little up to the beginning of the 19th century.

However, it wasn't until around 1476 that the system was introduced to England by Willian Caxton (1422? - 1491); a unique individual in many ways. Some aspects of Caxton's early life are shrouded in mystery. His date and place of birth are uncertain, but he was apprenticed to a London Mercer in 1438 and was still an apprentice in 1441 when his master Robert Large died. Large was an important member of the Mercers Company and was Lord Mayor of the City of London in 1439. As a trader he was very much involved in the cloth business between England and Flanders.

Around 1444 Caxton was in Bruges and he in turn became an influential and a wealthy merchant. Although as a Mercer he was involved mainly in the wool business, he became acquainted with the manuscripts produced in Flanders, which was the greatest centre of manuscript production in Northern Europe. Flemish workshops had a reputation for producing manuscript books that were valued for their craftsmanship.

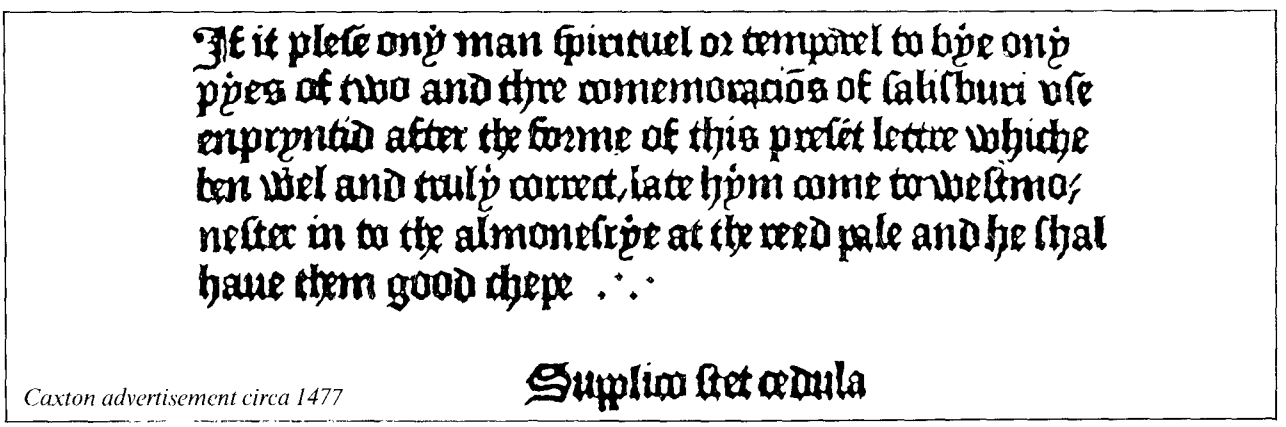
Caxton learned the art of printing in Cologne. He returned to Bruges with some trained journeymen where it is known he printed six books, including his own translation of a History of Troy. The accuracy of the statement "he printed" is doubtful - more likely he should be regarded as a "publisher" seeking authors and patrons and the necessary finance to meet the costs of printing and the sale of books.

It was in 1476 that Caxton returned to England and set up his press within the precincts of Westminster Abbey. He published some 100 works in English ranging from translations of French romances, devotional tracts, and liturgical books. One of the first books printed was the *"Sayings of the Philosophers"* translated from the French by Lord Rivers, brother in law of the King.

To ensure "cash flow" it is likely that Caxton began by printing small items such as indulgences with spaces left for the insertion of the name of the recipient. One found in the London Record Office is dated December 12th, 1476 issued by the Abbot of Abingdon to Henry Langley and his wife. But more apposite to the title of this essay is an advertisement circa 1477 which is in the John Rylands University Library, Manchester. It is probably the oldest printed advertisement produced by William Caxton to promote his publication "The Pyes/ordinale) of Salisbury", which set out in Latin details to be followed for the Easter services. A publication that would have been of extreme value to the clergy at that time. In the advertisement those who want to buy are urged "to come to Westminster into almonry at the sign of the Red Pale". It is evident that Caxton's business at Westminster prospered and the district within the abbey precints where he and other merchants rented space could in current language be termed a prime site, probably visited by a wide variety of customers in addition to the Abbey clerics. It is known that Edward IV was among his patrons.

Caxton was married and had a daughter, Elizabeth, yet nothing is known of his wife. There is also some uncertainty about the date of his death - 1491 is usually quoted.

The premises in the Abbey were taken over by Wynkyn de Worde whom Caxton had recruited during his period on the Continent and brought to Westminster to assist him in his business.


If it plese ony man ſpirituel or temporel to bye ony pyes of two and thre comemoracions of ſaliſbury vſe emprynted after the forme of this preſent lettre whiche ben wel and truly correct, late hym come to weſtmo; neſter in to the almonesrye at the reed pale and he ſhal haue them good chepe .·.·

Supplico ſtet cedula

Caxton advertisement circa 1477

Surprisingly Caxton does not appear to have become a member of the Stationers Company, which developed as a single trade guild in 1403 combining the writers of text letters (manuscripts), bookbinding and booksellers.

In the early 1500's a number of English abbeys and monastries were interested in printing.

Printing was not allowed to develop freely. Those in authority, Church and Parliament, believed the presses and their output should be controlled.

From the second half of the 16th century until nearly the middle of the 17th the Church (Archbishop of

https://doi.org/10.24355/dbbs.084-201803060820

Canterbury and Bishop of London) and the Stationers Company strictly supervised printers, requiring them to register each book they intended to print.

The Court of the Star Chamber by regulations in 1586 and 1634 reinforced the Church and Stationers monopoly restricting the number of presses and the towns in which they could operate. There were only 15 legal printing houses in London by 1615 and 20 in 1637 when the Star Chamber banned all periodical publication of news. However, following the Civil War the Star Chamber collapsed, but the 1662 Printing Act reinforced the Crown's powers and introduced more stringent controls on the press, permitting printing only in London, Oxford, Cambridge and York. Growing opposition in Parliament led to the refusal to renew the Act in 1694 and by 1695 the system of controls and licensing ended.

Politicians still suspected the power of the Press in spite of the fact that there were government controlled newspapers and subsidies (or bribes) were paid to editors and proprietors.

Such payments were common until the middle of the 19th century. From 1789 until 1799 John Walter received an allowance of £300 a year from the Treasury in "reward for the politics of the Times".

It was not surprising that with an empty exchequer there was support for the proposed Stamp Tax and Stamp Duties on paper and certian publications in 1712. The taxation was a duty on the weight of paper or a rate per sheet and an additional sum for every advertisement. Successive acts increased the various duties during the 18th & 19th centuries so that instead of merely raising revenue the tax controlled newspaper circulations for at 6d or 7d they were beyond the reach of the masses.

During July 1835 a meeting at the Crown and Anchor Tavern petitioned parliament to repeal the "Taxes on Knowledge". The following year the Chancellor introduced a bill to reduce the tax to 1d, to limit the size of a sheet, and register proprietors of newspapers. The size limitation and registration clauses were deleted when the bill went to the House of Lords. The tax remained at 1d. until it was abolished in 1854.

The tax on advertisements in London papers produced nearly £5,000 in 1760 and over £36,000 in 1797. The provincial yields were £1,200 in 1760 and over £40,000 in 1797.

Note that by the time the provincial press was firmly entrenched. T.H. Plumb has suggested the reason for its success was it carried news of horse racing "both local and distant".

As seems inevitable in tax matters some publishers evaded the duties. They did so by excluding news and publishing only opinions - the margin between the two was to say the least difficult to differentiate at times. Cobbet achieved a circulation of over 40,000 for his twopenny weekly entitled *Political Register*. Another evader was *Black Dwarf* under the editorship of Wooler which reached 12,000.

Thus it is evident that early newspaper history is a record of extreme harassment emanating not only from the development of techniques, but also of distribution (the major towns were not linked to London until around 1700), but above all the greatest problems for would-be - proprietors and editors were those arising from political reform. The succeeding decades were to bring problems of capital and investment to obtain larger circulations.

Some of the earliest trade announcements referred to new books appearing around 1650. Many printers offered other items for sale including remedies and nostrums - details of which they included in their book lists and other publications.

The *Mercurius Politicus* in 1658 carried an advertisement for China tea "approved by all physicians". Coffee had been advertised some years before and chocolate in 1657. In 1660 there was a reference to Buckworth's famous lozenges or pectorals. All these caused a later C & D X-rayser to comment "...it is noteworthy that the trade appears to have been mainly in the hands of stationers and booksellers".

The importance of such book lists and catalogues as advertising media contracted as newspapers blossomed.

An advertisement in an issue of the *Perfect Diurnall* in August 1652 informed the reader that at the Physitians house in Flying Horse Court in Fleet Street may be had these chymical and sympathetical medicines:-

"...a water for 3sh the ounce that will purifie the face to an exact clearness and fresh colour, keep it from wrinkles, take off freckles, morphew, sunburn, etc.
An oil for 4sh an ounce that will change red hair brown or black.
A powder and a plaister for 20sh that in 6 weeks time will cure the Kings Evil perfectly.
A Sympathetical Quintessence for 5sh a dram that being dropped into the Urine (while it is yet warm) every morning and then set on embers to evaporate, will heal all ulcers in the Reins or Bladder and dissolve the stone in a short time."

A footnote states:-

"All these medicines have been often proved."

(To be concluded)

The productionof this **Pharmaceutical Historian** is partly borne by

Set by Typesmiths. Printed by Swiftprint (New Malden) Ltd Tel: 081-648 9469

https://doi.org/10.24355/dbbs.084-201803060820

PHARMACEUTICAL HISTORIAN

Vol 21 No 2
June 1991 £1

Newsletter of the BRITISH SOCIETY FOR THE HISTORY OF PHARMACY. Established 1967
Contributions to the Editor: Arthur Wright F.R.Pharm S., D.B.A.: 36 York Place, Edinburgh, EH1 3HU

Contents

Diary Dates

1991
September 12
British Pharmaceutical Conference, Liverpool,
BSHP Session - in Proudman Lecture Theatre, at 2pm.
Mrs. Christine Hillam - "Robert Wooffendale, chemist, druggist and dentist: the making of a reputation."
An artefact assessment session - delegates to bring along artefacts.

1992
April 3-5
BSHP Spring Conference - Chimney House Hotel, Sandbach.

Thank you
...To Squibb organisation for once again supporting the Foundation Lecture.

...To Merrell for again contributing to the production of the *Pharmaceutical Historian.*

Officers
At the May 1st meeting the Committee elected the following officers of the Society:-

President	Mr. W.A. Jackson
Vice-President	Miss M.L. Knowles
Hon. Secretary	Dr. W.E. Court
Hon. Treasurer	Mrs. E. Lucas-Smith
Publications Editor	Mr. A. Wright
Professional Secretary	Dr. L.C. Howden

Obituary

George Gunthorpe, F.R.Pharm.S.
It was with deep sorrow we learned of the death of George Gunthorpe who died on the 22nd March. He served as a commitee member for many years, and also as treasurer from March 1985. He had a great knowledge and experience in pharmacy, wide interests and will be greatly missed in many spheres.

We tender our deepest sympathy to his wife and family.

https://doi.org/10.24355/dbbs.084-201803060820

General Practice Pharmacy in the 1840's

By Dr. W. E. Court

The year was 1841. The streets of the town were wet and muddy in winter and dry and dusty in the summer; the aroma of horse dung perfumed the atmosphere. Better roads due to innovations involving John Loudon McAdam's (1756 - 1836) excellent drainage principles and Thomas Telford's (1757 - 1834) firm, pitched foundations were gradually connecting the main towns and cities. Tar macadam surfaces, dry and even, would not arrive until the end of the century.

For most people transport was limited to the horse and waggon, the pony and trap or, more usually, plain Shank's pony i.e. walking. Stagecoaches and carriers connected the main cities; indeed, by 1836 there were some 700 mailcoaches and 3,300 stagecoaches in service. Journeys by stagecoach were slow, cold and uncomfortable. The Stockton and Darlington Railway had opened in 1823, the Liverpool and Manchester Railway in 1830 and, by 1839, Lancashire was linked to London and the Midlands although Edinburgh was still not connected. Most towns had no railway station. The new-fangled bicycle was still in a very primitive form so ordinary people lived close to their work and walked to business and social commitments. The community was closely knit and the commuter, the foreigner from the next town, was a species of a future generation.

Heavy goods moved on the major rivers e.g. Thames, Severn, Mersey, Trent, Ouse, etc. and steamers plied from Dover to Calais since 1821. Inland the canal network had developed rapidly from 1790 onwards, connecting the ports to the major industrial towns, but leaving many areas isolated. Smaller goods could be obtained by carrier or stagecoach and the introduction of the Penny Post by Rowland Hill (1795-1879) in 1840 offered a new cheaper communication service.

By 1841 the town streets were gas illuminated. William Murdoch (1754-1839) had exploited the carbonisation of coal to yield coal gas and, by 1792 had demonstrated its potential for street lighting and, by 1830, gas lighting was becoming more and more common using fish-tail burners. The more efficient incandescent gas mantle would not be available until the 1890's; nevertheless gas lighting permitted longer working hours and was safer than oil lamps and candles.

The growth of industrial towns in the early 19th century was inspired by inventions such as the steam engine (James Watt, 1736-1819), the spinning frame (Richard Arkwright, 1732-1792), the flying shuttle (John Kay, ca 1704-1764), the drop-box loom facilitating multicolour textile production (Robert Kay, ca 1760) and the steam locomotive (Robert Stephenson, 1803-1859). Mining of coal, iron, lead and tin was expanding and industrial concerns such as foundries (John Wilkinson, 1728-1808; George Stephenson, 1781-1848), breweries (Ben Truman, ca 1760), potteries (Josiah Wegdwood, 1730-1795, John Doulton, 1793-1873), textile works (Titus Salt, 1803-1876) and glass works were well established by the early 19th century.

The enclosure of common land in the late 1700's increased pressure on urbanisation and ordinary workers found themselves herded in typical terraced housing forming overcrowded slums with impure and erratic water supplies and totally inadequate sanitation. Frequently water was supplied directly from a nearby river via wooden or metal, often lead, pipes or culverts, stored in lead cisterns and ultimately delivered via external standpipes serving 15 or more houses each. Often smelly, open drains traversed the streets, night soil was removed infrequently and privies irregularly cleaned. Workers' homes were usually illuminated by the hazardous use of candles, sperm or colza oil lamps or rushlights. Personal hygiene left much to be desired.

Inevitably diseases rampaged amongst a community inured to long working hours, a monotonous diet mainly of bread, smoke-polluted atmospheres and minimal social services. Not surprisingly, cholera plagues swept the country in 1831 and were to do so again in 1848, 1853 and 1866.

Illnesses such as appendicitis, septicaemia and tuberculosis, which cause no serious trouble today, would have caused an almost inevitable death in 1841. Surgical operations were rough and hazardous until the application of ether and chloroform anaesthesia in 1846 and 1847 respectively. Lister's (1827-1912) use of antiseptics in 1865 further improved survival times.

Battling against this background of disease readily transmitted, down in the main street the chemist plied his trade. Physicians were few in number and demanded large fees; therefore the ordinary people sought the more readily available advice of the chemist and druggist.

The evolution of the chemists and druggists had been a slow process but by the 18th century their fusion was well established. The druggists had originally traded in drugs of animal and vegetable origin; the later chemists, following the Paracelsian ideas of iatrochemistry, specialised in chemicals and chemical drugs.

The Apothecaries Act of 1815 firmly secured the right of chemists and druggists to buy, compound, dispense and sell medicines and drugs by wholesale or retail trading. Exactly who these chemists and druggists were was not clearly defined. Therefore to differentiate chemists and druggists from grocers, oilmen and hucksters who sell jalap, senna and salts, from drug brokers, drug grinders and dry salters, from patent medicine vendors, quacks and mountebanks, from bonesetters and medical herbalists and from farriers, cow doctors and apothecaries or general practitioners

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who supply medicines, Jacob Bell (1810-1859) recommended that a chemist and druggist should be a person who had been apprenticed to or regularly educated by a vendor of drugs or dispenser of medicines (Bell, 1841).

Another group of persons interested in keeping 'open shop' were the so-called 'trading apothecaries'. Subsequent to the Rose judgment of 1703, the apothecaries, whose Society of Apothecaries had been founded in 1617, gradually divided into two groups viz. those who preferred to be the general practitioners of medicine, and those who elected to dispense medicines in 'open shop'. By 1755 this latter group, the 'trading apothecaries', were no longer eligible as liverymen of the Society of Apothecaries (Good, 1796). Bell therefore added to his definition of a chemist and druggist the clause 'but who does not profess to act as a visiting apothecary'. The non-visiting apothecary was literally a compounder and dispenser of medicines and a counter-prescriber.

The early 19th century apothecary/chemists' premises were usually either the elegant Dickensian rounded shop front with recessed doorway type or the later Georgian/William IV type with a flatter-fronted and arch-windowed style.

In 1840 education was not very good; church or charity schools offered a start in life for some children but the 1870 Education Act sponsored by W.E. Forster (1818-1886) introducing universal elementary schooling borne by the rates was 30 years hence. Therefore, to alert customers to a particular practice, a readily recognisable sign was essential. For the chemist's shop the sign was typically the show globe, one or more flask-shaped carboys containing coloured fluids - red, blue or green. The Concise Oxford English Dictionary defines the term carboy as a large, globular glass bottle to contain liquids and usually protected in a frame; it is derived from the Persian 'karaba'. The apothecaries had used the pestle and mortar as their sign and Urdang (1949) suggested that from the 16th century carboy globes differentiated chymists from apothecaries. As apothecaries and chemists and druggists merged, so both types of sign denoted pharmacy.

The education of the retail chemist or apothecary was not satisfactory. In the absence of schools of pharmacy and defined courses of study, the normal route of training was long apprenticeship, usually about 7 years, followed by a few years improver or journeyman experience before setting up in business in one's own right.

Working hours were long as shops frequently opened from 8 a.m. to 11 p.m. including Sundays. The Factory Act of 1833, introduced by the health reformer Edwin Chadwick (1800-1890), restricted factory working hours for young people 13-18 years old to 69 hours per week; the 1847 Act was to further restrict children and females to 10 hours per day. Nevertheless one learns from a memorial panel in Earsdon churchyard, Northumberland that children of 11, 12, 13 and 14 years of age died in a mine disaster claiming 204 lives in 1862. Life in shops was equally arduous and the Shops Acts would not commence until 1892. As late as 1890 shop hours could be 8.15 a.m. to 8 p.m. on weekdays and extended to 9.30 p.m. on Fridays and 11 p.m. or midnight on Saturdays. Shops were poorly heated, if at all, and often the door remained open to welcome potential customers.

The apprentice master normally received a premium from the parents or guardians of the pupil. For the sum of £40 - £60 in the provinces and £100 up to £250 in the major cities, the master agreed to train the apprentice in the business of chemist and druggist or chemist and grocer. The apprentice often lived in with the family; conditions could therefore vary considerably and the apprentice might receive a pittance as pocket money although there would be little time in which to spend it. Life may have been leisurely for the wealthy, it was certainly very hard and harsh for the common man.

Although in 1841 the population of Great Britain was expanding rapidly as a result of the Industrial Revolution, many towns were still very small and often isolated. In such towns, as opposed to London where extra facilities were available, the quality and integrity of the individual apprentice master markedly influenced the training of the apprentices in the pre-examination 1840's.

Some chemists had trained as dispensers or assistants to apothecaries who had, consequent on the Rose judgment, become more interested and more involved in medical practice and employed menials or dispensers to compound their medicines. There was considerable criticism of such apothecaries as the boys they employed were permitted to dispense without adequate supersivion or training. *The Pharmaceutical Journal* of March 1st, 1857 pointed out that apprentices to chemists and druggists usually had two, three or four years experience of pharmacy training before being permitted to dispense the medicines of several different practitioners; therefore their experience was both wider and supervised. The need for dispensed medicines was considerable because, until 1829, the apothecary, unlike the physician, could only charge for medicines, not for consultation, so the medicine bottle habit was a well established source of income.

The apprentice normally commenced his duties by keeping the shop clean and tidy, a useful way of learning the drugs, their containers and the pharmaceutical apparatus of the day. Further experience would include powder mixing, massing and rolling stock pills, spreading plasters, mixing ointments and caring for the leeches. Dispensing came later. As A.S. Hill wrote of his apprenticeship in the early 19th century "nothing was too trivial or too menial for an apprentice to be given to do and it was a case of work from early morning until late at night from week's end until and from year's end to year's end" (Hopkinson, 1983).

Counterprescribing came from the apothecaries in

https://doi.org/10.24355/dbbs.084-201803060820

'open shop' to the chemists and druggists and thence to the pharmaceutical chemists. The practice of medicine in 1840 as far as the vast majority of people were concerned had changed little from 1740 (Youngson, 1979). Science had, as yet, made little impact and most physicians were classically rather than scientifically trained. The men and women who were to shape the future great changes in science, medicine and social structure were still quite young e.g. Claude Bernard (1813-1878), physiologist, 28 years old; Charles Darwin (1809-1882), naturalist, 32; Louis Pasteur (1822-1895), bacteriologist, 19; Joseph Lister (1827-1912), surgeon, 14; Florence Nightingale (1820-1910), nurse, 20; Friedrich Engels (1820-1895), political philosopher, 21 and Karl Marx (1818-1883), political philosopher, 23.

Life expectancy in 1841 was about 45 years but, as the birthrate exceeded the deathrate, the population increased rapidly. The appalling living conditions of the ordinary people were graphically presented in a somewhat exagerrated style in the works of Charles Dickens (1812-1870) between 1840 and 1855 and in the illustrations by his cartoonist friend George Cruikshank (1792-1878).

In this sad, harsh world where, although real wages were rising, child and female drudgery were commonplace, the chemist and druggist offered a much needed service. The range of work in the early 1800's pharmacy varied greatly. With the almost total absence of easy transport, the enterprising chemist and druggist used his entrepreneurial flair and manipulative skills to provide a wide range of domestically desired products as well as medicines.

From the exterior his shop front, apart from displaying the chemist's sign, usually revealed specie jars, large, cylindrical, conspicuously labelled jars up to 80 cm high and 40 cm diameter, fabricated in tinted or painted glass or earthenware. Inside, the shop was quite simple. A large bench at the end furthest from the door provided a working surface and enabled the chemist to perform his duties. Behind, and possibly on both sides, were mahogany drug runs, skillfully crafted sets of drawers with wooden handles and fascinating labels indicating the contents. Shelves, above or around the drug runs, provided further storage space for rows of specie jars, glass and earthenware storage jars and blue, green or colourless glass bottles, all with distinctive labels. The stock of aromatic plant materials hidden away nevertheless gave the chemist's shop a unique smell which characterised the pharmacy as late as the 1950's.

The chemist presided at the great, open counter surrounded by the tools of his trade, the pestles and mortars (metal or composition), plaster irons, pill tiles and rounders, ointment slabs, beamscales for large quantity weighing, equal-arm handscales for small quantities, bell and bucket weights, apothecary, troy and avoirdupois weights, lozenge cutters and the prescription book or log-book of transactions. In an era before universal literacy and scientific understanding the chemist, surrounded by his tools, his books and his exotic drugs, presented a mystique and his advice and nostrums were readily sought after.

Reference books available in the chemist's shop depended on the educational ambitions of the individual. The London Pharmacopoeia of 1836, the 9th and penultimate edition of this work, was the current source of information on the new alkaloids such as aconitine, morphine, quinine and strychnine, on new chemicals such as iodine, bromine and prussic acid, and on a wide range of plant drugs. The inclusion of tests for impurities on the advice of pharmaceutical chemist Richard Phillips was a pointer to the future. *'Gray's Supplement to the Pharmacopoeia'* published in 1818, 2nd ed. 1848, had the advantage of being written in English. It provided a wide range of formulae for medicinal products as well as dyes, paints, perfumes, cosmetics, liqueurs, varnishes etc., retailed by the versatile chemists and druggists.

Other books and tracts were available. Particularly useful were Dr. Jonathan Pereira's *'The Elements of Materia Medica'* published in 1837, with a second edition in 1842, Christison's 'A Dispensatory' 1842, Henry Beasley's 'The Pocket Formulary' 1844, Kane's 'Elements of Practical Pharmacy', Dublin in 1831 and Dr. Anthony Todd Thomson's commended and valued 'London New Dispensatory' 1811 et seq.

The extent of the chemist's library was, as today, very much an individual matter. Many practitioners acquired their formulae from the prescriptions of the physicians or by copying their apprenticemaster's favourite scripts. In my possession is such a book of favourite receipts of the early 19th century. Although its precise origin is obscure, it is clearly the chemist's friend, a collection of about 300 formulae for medicinal, veterinary and domestic items.

Conspicuous among these formulae are mixtures, tinctures, essences, spirits, powders, plasters, syrups, lozenges, ointments, pills, decoctions and tooth powders. Domestic items included barley sugar, candy, lemonade, ginger beer, soda water, curry powder, sauces, herbal tobacco and herbal snuff, plate powder, boot top liquid, sealing wax, varnishes, ink and soaps, bathing spirits and perfumes. Veterinary preparations included blisters, drenches and horse balls.

The chemist and druggist usually obtained his drug supplies from a provincial druggist wholesaler who, in turn, purchased stocks from the London drug brokers, London being the principal centre for drug imports.

The necessity of preparing one's own tinctures, decoctions, infusions and other galenicals from the crude drugs often resulted in the use of a second, more private room or area for such work. Thus developed the separate dispensary or, in some cases, the embryo manufacturing unit. Routine galenical preparation was the duty of the hard-working apprentices.

Examples from the book of receipts reveal the range of drugs used.

Aqua Fontana, spring or tap water, and the stability of the colours must have presented problems.

(To be concluded)

https://doi.org/10.24355/dbbs.084-201803060820

Early Advertising and Media
(Part Two)

By A. Wright

John Houghton F.R.S., an apothecary, launched in 1692 - "A Collection for Improvement of Husbandry and Trade" as a single sheet. It was issued twice weekly, and began with scientific reports. When at a later stage the publication contained a number of advertisements Houghton explained - "Like Lawyers I take all causes I may fairly; who likes not may stop here..."

It has been suggested that Houghton was the father of the advertising industry, but that explanation rather suggests he was not a creator but handler of advertising.

The *London Gazette* said it was refusing advertisements in 1666 but spasmodically did so for a number of years. Presumably the printer had a number of friends!

The first advertisement of medicines exclusively of chemical origin is in the *Mercurius Politicus* April 15, 1658 offering "medicines prepared by the art of Pyroteckny" from the sign of the "Bores Head" over against "The Naked Boy".

In "The *True Domestick Intelligence,* December 2nd 1679" a Soap maker Timothy Cox emphasises his soap products are better than those made by Scale-makers.

Tar water was offered in a number of advertisements in the 1740's each trying to outdo the other. Eventually there is an offer of "Genuine Acid Juice of Tar" in a 1747 issue of the *General Advertiser.* Apparently the title implied a superior preparation.

During the Great Plague 1665 the *Itelligencer* contained an advertisement ostensibly from "the President and College of Physitians of London" recommending as an antidote their *Spiritus Antiloimoides* sold by William Johnson, apothecary and chemist to the College.

Although extravagant claims continued, gradually the art of preparing and writing copy for advertisements improved and a greater variety of products are to be seen in newspapers of the early 18th century. Yet the main early thrust of advertising was not through newspapers but by billposting, of which more later.

Another advertising activity was the use of 18th century trade cards, illustrated by a woodcut or engraving. They had the great advantage of not being subject to Stamp Tax.

Whatever the media used - handbill, lists or newspapers, both printer and advertiser needed a broad literate society, but initially such readers were found only among the affluent groups. Those who wished to sell services or wares continued to use the traditional methods of distribution - visiting markets or fairs which provided concentrations of possible customers. J.A. Sharpe in his Social History 1550 - 1760 suggests there were some 3,200 fairs in England and Wales around 1746. Almanac publications of the time gave details of the fairs, phases of the moon and astrological information - all very much in demand during the period. Pedlars usually with pack horse travelled through the countryside and smaller villages.

If the fair or pedlar could not meet their requirements then the would be purchasers could look for the shop exhibited legally under legislation granted by Charles I. Such signs suffered badly in London's Great Fire of 1666, but reappeared in such profusion that Addison wrote in *The Spectator* in 1714 "Our streets are full of blue boars, black swans and lions. There are more peculiar creatures here than in the African dessert." Maybe the small printed handbill arose from the shop sign - certainly the bill posters work was very much in evidence at the end of the 16th century when "print runs became longer".

The *Morning Post* of December 16th, 1782 complained that a person could not walk from St. Pauls to Temple Bar without having a dozen different "Quack bills" thrust into his hands.,

Another fascinating method of advertising at that time was the Street Cryer - as distinct from the Town Cryer. The earliest mention of London Cries is in an old ballad LONDON LYCKPENNY or LACKPENNY by John Lydgate, a Benedictine monk around the middle of the 15th century. A collection "Habits and Crys of the City of London" was published in 1688 and reprinted in 1711.

Again Addison comments in *The Spectator* "There is nothing which more astonished a foreigner and frights a country squire than the Cries of London - my good friend Sir Roger often declares he cannot get them out of his head or go to sleep for them the first week he is in town."

It was the 1870 Education Act which created a new readership. Those who wished to advertise had to adjust to a new situation. Publishers too noted changing demands which began to have a marked effect on the editorial content, resulting in time to the distinction between "popular and quality newspapers". Above all the industrial revolution created the need for large capital investment in machinery and equipment which provided increased production, disemminated by improved transport, and advertising bringing the products to the notice of a wider market.

But for advertising to be remunerative demands a recognisable article to enable purchasers to be specific in their requirements. That basic need - brand identification - was evident in even the earliest lists

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Abstract from a paper given to the society on May 3, 1989

https://doi.org/10.24355/dbbs.084-201803060820

issued by printers and booksellers.
Dr. James Powder
Hoopers Pills
Daffys Elixir

Greenough's tinctures are later examples mentioned in The Morning Chronicle of January 6th, 1785.

Posters

Brand identification, improved paper manufacture yielding larger sheets and advertisers' inherent demands for larger notices encouraged the development of another media - posters.

In the beginning posters were monochromes, but Cheret of France after spending some time in England returned to Paris and there using an English press, developed the technique of drawing designs in colour directly on to the "litho stones". Other artists were attracted to the new method including DRAQUE, CHAGALL, MATISSE, and LAUTREC. Some like Picasso haunted the printer's premises for long periods. He supervised the printing and designed posters for his exhibitions and bull fights.

In England new standards of poster art were established aided by improvements in inks and presses. By the 1890's artists like Sir Frank Brangwyn, Breadsley (editor of the Art magazine - The Savoy), the Beggarstaffs (whose work has since been hailed as masterpieces, but received little immediate commercial success) all helped to surpass the French School.

The London Transport, the railways, British Travel Association and the Empire Marketing Board provided some enlightened sponsorship. Possibly the outstanding example was the purchase of the Sir John Millais portrait "Bubbles" by A & F Pears who "accorded it the honour of the highest artistic reproduction that the skill of the poster printer was capable of, and spread it all over the world, with the approbation of the painter". The purchase was made after the painting had been done and it wasn't commissioned.

Published in 1864 Fennings' Everybody's Doctor was republished in 1925. The index refers to no less than 50 maladies from "asthma to worms". It is a 40 page booklet plus covers.

Advertisers did not merely exploit print and paper they looked to possibilities from other industries. There is an extensive literature on Pot Lids.
Recently Royal Doulton the ceramics company included three hundred or so items in an exhibition of their advertising ware produced for various customers. Among them was an old English Lavender figure made for Yardley around 1925. The Dresden factory also produced for Yardley some similar figures around 1936. (Their base is much more ornate than the Doulton one and the colouring is harsher).

J. Grossmith also used Doulton's expertise to promote their perfumes.

In the exhibition was a wall plaque with an excellently executed portrait of Queen Victoria in full colour. Underneath the portrait were I believe just two words - Vinolia Soap.

Earlier press advertising was less discreet in its approach to the Royal Family. In the *Edinburgh Review* 1843 there is a reference to the Balm of Syriacum, a remedy for bodily and mental decay and it unkindly announced that the Royal Household as well as the pubic at large had experienced its benefits.

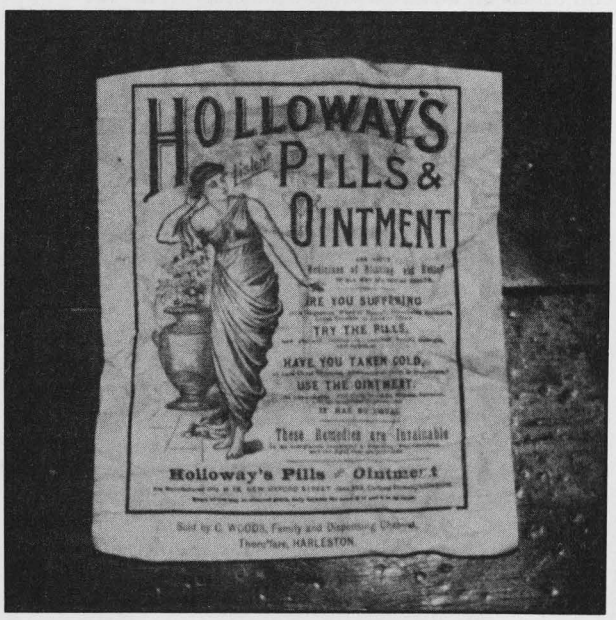
To return to perfumery - in a recent book "Collecting Theatre Memorabilia" George SPEAIGHT points out that many theatre programmes issued between the 1860's and 1880's carried advertisements by Eugene Rimmel. Some "not only carried Rimmel's advertisement but were printed on perfumed paper".

The advertising perfumed cards issued between the wars certainly were "strong enough" to ensure their presence would be noticed for quite a period of time.

I am aware that I have strayed beyond the definition "early" in my title, but I hope you will allow me to refer to an era in advertising that saw the introduction of a completely new medium and began a reallocation within advertising budgets. I refer to radio and film advertising, particularly the former to which in 1938 British advertisers paid around £1 million for "time" on continental stations. Radio Normandy and Radio Luxembourg were the main providers of advertising "time" in English.

Of course during the middle of the 19th century an outstanding advertiser was Holloway whom it was estimated spent approximately £5,000 in 1842, £10,000 in 1845 and double that amount six years later. By 1855 it was said to be £30,000 and £40,000 in the 1860's.

Rowland & Co. of Macassar Oil fame and Dr. De Jongh Cod Liver Oil were each spending £10,000 annually.



https://doi.org/10.24355/dbbs.084-201803060820

Between 1850 and 1900 and annual sale of proprietary medicines rose from around £500,000 to £4 million reflecting the increasing competition in a growing market.

From the beginning there have been critics of advertising. It does seem that much of their abuse was directed at exorbitant claims made for some remedies. The British Medical Association's volumes on "Secret Remedies" were critical of the profits being made and the exuberant boasts of the vendors". One newspaper *The Mail* in 1924 so criticised a preparation "Yadil" heavily advertised for "consumption, cancer, pleurisy, malaria, scarlet fever, and pernicious anaemia" that the product was discontinued.

The considerable efforts taken by a number of organisations such as The News Paper Society - originally founded to fight the Stamp Duty, the Advertising Association, the Pharmaceutical Society, the Proprietary Association of Great Britan to improve the situation is worthy of another investigation.

A page from a counter day book dated 1821.

By E. George & F.H. Rawlings.

Found recently in an 1818 Parish Rate Book, a page measuring 14.5 × 9 inches with four columns on each side, of entries for sales from Saturday 13th to Sunday 21st Janaury 1821 with part entries for Friday 12th and Monday 22nd.

It is not known whether this belonged to an apothecary or a chemist and druggist or where the business was situated. The names of eight customers settling their accounts gave no conclusive clues when the Bristol Directory for 1821 was searched. The sheet was found in a St. Stephen Parish Rate Book which suggested the business was situated in that parish. If so, there are two possibilities, an apothecary Richard Williams of 56, the Quay 1798 to 1823, he was listed also as a man midwife from 1813. The other a druggist and chemist, was Robert Dyer at 3, Clare Street from 1818.

The takings for the week Sunday to Saturday were £7 4s 6½d. excluding any charges for dispensed medicines which presumably were recorded in the Prescription Book. Included in this total was £3 6s 8d being payments by the customers who had an account.

The daily takings were:-

		£	s	d
(Friday	January 12th)	1	0	3
Saturday	January 13th		16	11
Sunday	January 14th		4	2½
Monday	January 15th	1	7	9½
Tuesday	January 16th		10	11
Wednesday	January 17th	1	6	5
Thursday	January 18th		16	3
Friday	January 19th	1	1	3
Saturday	January 20th		14	8½
Sunday	January 21st		9	1
(Monday	January 22nd)		5	2

There was no note of the quantity sold, everything seemed to be in pennyworths e.g. Epsom Sales 3 at 1d, 8 at 1½d, 1 at 2d, 4 at 2½d, 1 at 1s. Two dental extractions on the first Monday were charged at 1/- each.

On Saturdays there was a noticable increased demand for items used to improve bowel movement such as Epsom Salts, Aloes, Castor Oil, Senna, Jalap etc. On both Saturdays six of the forty or so items sold were for this purpose, whereas for the rest of the week it was usual to sell two each day.

Household and grocery items included honey (×3), sagoe (3d), pickled cabbage, Hord perlatm-pearl barley (1½d), arrowroot (1d), treacle (×3), Plumbi nigr-black lead (×4 1½d, 5d, 1d, 2d), Soda water. Modern pharmacists will read this list with disbelief; in fact all these were normal stock in trade for the early nineteenth century chemist and druggist as is shown by an advertisement in the 1835 Bristol Directory by Ferris, Brown & Capper who traded as Chemists & Druggists at 1, Mall, Clifton and 4, Union Stret, Bristol. Included in a long list of items they stocked were cocoa, tapioca, sago, pearl barley, curry powder and paste, semolina, macaroni, plate powder, black lead, wax and spermaceti candles, fish sauces.

Of interest was the sale frequency of some items:-

	number of sales	price range
Leeches)	8	3d - 3/6
Hirudines)	8	6d - 6/-
Capers	15	2d - 4d.
Epsom Salts	17	1d - 1/-
Tinct Opii	12	1d - 6d.
Turpentine	9	1d - 4d.
Succ. Glycer.)	8	1d - 2d.
Glyc. Root)	2	1d - 1½d
Ammon Carb.	6	1d - 3½d
Pearl Ash	8	1d - 3½d

Pearl Ash was a crude potassium carbonate obtained from wood ash and was used to make soap (an expensive item), and purify Annatto (a dye used in the Bristol woollen textile industry).

Proprietary medicines sold were:-

Godfreys cordial	9d, 1d 1d.
Hunt's Pills	1/3½.
Pil. Scotia	1d, 3d.

https://doi.org/10.24355/dbbs.084-201803060820

Poppy based products sold included:-

Syr. Papav. alb.	6, (5@ 1d, 1@ 3d.)
Confect Opii.	2@ 1d.
Poppy Heads	3@ 1d.
Tinct. Opii.	12 @ 1d - 6d.
Paregoric.	6@ 1d - 2d.
Dover's Powder	1@ 2d.

In addition the sales include the following items:-

Gum Mastic	Lichen Isl (Iceland Moss)
Tinct Rhei	Fol Marrub (Horehound)
Aloes	Flor Chamomile (9)
Sem Lini, Farini Lini	Fol Minth
Rose Oil	Fol Pulegii (Pennyroyal)
Gall Alep	Flor Sinapsis
Clove, Tamarinds	Rad. Glycer
Ol Cinnam, Olive Oil	Almond Oil
Tinct Lavand	Tinch Benz Co.

Chemicals:-

Ammon Carb (as Ammon praep)	Alum
Ext. Tutta (? crude zinc oxide)	Borax
Sal. Nit. (Potasium nitrate)	Saltpetre
Cream of Tartar	Magnesium
Ol Vitriol	Bay Salt
Glycerine	Flor Sulph
Acid Vit (Copper Sulphate)	

Indicating the wide range of goods available to, and purchased by, the public at that time.

One wonders how many of these items were just for domestic use or whether the purchasers used some of them in their various trades.

In any case the find provides an interesting insight into the daily life of the period.

The Bristol Record Office reference is P/St S/OP/8/3 and we thank the staff for drawing our attention to it, and Mr John Williams, the City Archivist, for permission to reproduce part of it here.

Spring Conference

The conference of the British Society for the History of Pharmacy in Greenwich celebrated the 150th anniversary of the founding of the Royal Pharmaceutical Society.

The meeting opened with an illustrated talk on Greenwich and its environs by Dr M.P. Earles, and Mr John Stone. On Saturday morning the delegates went to 17 Bloomsbury Square the former home of the Pharmaceutical Society from 1841 to 1976 and for much of that time housed the School of Pharmacy. It now belongs to the German Historical Institute London and the group was met by Dr Eva Mayring who described the work of the Institute. The remainder of the time members wandered slowly through the finely decorated and furnished rooms invoking nostalgic memories.

Saturday afternoon the conference convened in the lecture hall of the Pharmaceutical Society in Lambeth for a symposium session entitled 'Pharmacy in the 1840s'. Dr J.G.L. Burnby spoke on the chemists and druggists, Mr A. Morson discussed the manufacturing and wholesaling of drugs and Dr W.E. Court described the pharmaceutical practices contemporary with the founding of the Society. This meeting was followed by a reception in the Adams Room and supper.

The conference continued in Greenwich on Sunday morning with a paper by Dr R. Ellis of St Bartholomew's Hospital also spoke on 'Early Ether Anaesthesia: the Patents' describing the attempt by the American William Morton to obtain an English patent for anaesthetic ether.

In the second paper, by Dr Annet Bierman, the audience was able to contrast and compare the development of pharmacy in Britain with that in the Netherlands. Dr Bierman spoke of the political and scientific events that influenced the development of pharmacy in Holland and the events leading to the founding of the Dutch Pharmaceutical Society in 1842.

The final paper was given by Mr Nigel Tallis who described the early history of photography with particular reference to the salted paper print process developed by Fox Talbot in 1841. A photograph of the lecture room window was taken by this process. The experiment demonstrated the success of the method and at the same time revealed the difficulties the pioneers of photography experienced in handling the materials necessary to the process.

The BSHP wish to take this opportunity of thanking Merck and Co. Inc. for the generous sponsorship of the symposium session and social events that followed. Also to Associated Pharmaceutical Products for a generous donation. Thanks are also due to the Royal Pharmaceutical Society for the use of the Society's house on Saturday and the Director of the German Historical Institute for the warm welcome to Bloomsbury Square.

Set by Typesmiths. Printed by Swiftprint (New Malden) Ltd. Tel. 081-648 9469

https://doi.org/10.24355/dbbs.084-201803060820

PHARMACEUTICAL HISTORIAN

Vol 21 No.3
September 1991 £1.00

Newsletter of the BRITISH SOCIETY FOR THE HISTORY OF PHARMACY. Established 1967.
Contributions to the Acting Editor:Dr J.Burnby B.Pharm.,Ph.D.,FRPharmS.,FSA. 36 York Place, Edinburgh, EH1 3HU

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Dr. Christine Hillam – "Robert Wooffendale, chemist,druggist and dentist: the making of a reputation."
"Pharmaceutical antiques roadshow" (Assessment of pharmaceutical artefacts submitted by Conference members.)

12 November 1991
W.A.Jackson,"Guaranteed to Cure ! Inventions for Healing."
(Joint meeting with the Royal Pharmaceutical Society)

Mr Arthur Wright.

During the first five years of its life the Pharmaceutical Historian had three different editors, and we have been extremely fortunate to have enjoyed the services of Arthur Wright FRPharmS.,DBA. in this capacity since the death of Owen H. Waller in 1972.

Throughout this period he has carried out his duties with the same ability and dedication he displayed as the editor of the *Chemist and Druggist,* and it is with considerable regret that we must accept his resignation as a result of continuing ill health. However, we hope to see both him and his wife Ina at future meetings.
Our thanks are also due to Dr Juanita Burnby for agreeing at short notice to edit this edition of the Historian.
W.A.Jackson. President.

Visit to Kew Gardens.

On Wednesday 22 May 1991,a party of 22 members visited the custom-built library and museum which houses the collection of 'Plants of Economic Use' in Kew Gardens.

After hearing an introductory talk by David Field and viewing a special exhibition of pharmacognostical specimens and books on medicinal plants, members were free to examine items of their own choice in the main storage area.

The whole of the collection, which includes the Pharmaceutical Society's Materia Medica Collection presented to Kew Gardens some years ago, has been re-labelled and catalogued, and to date, approximately 48,000 of the 70,000 specimens have been photographed. The storage conditions, labelling and state of the specimens were excellent, but it was sad to learn that all the controlled drugs, including the fine collection of varieties of Opium had been removed by H.M. Customs and Excise officers.

After the official visit, many members took advantage of the fine weather to enjoy a stroll in the Gardens to complete a very successful afternoon which had been organised by Dr Court and Dr Howden.

1848

https://doi.org/10.24355/dbbs.084-201803060820

Activities of Society members.

During this sesquicentenary year of the Royal Pharmaceutical Society of Great Britain members of BSHP have been particularly active.

Our congratulations go to committee member Mr Terence Turner OBE.FRPharms. who has been awarded the Pharmaceutical Society's Charter Silver Medal. As members will remember he has made a particular study of the pharmacy of the *Meddygon Myddfai.*

Closer links are being made with the Kring voor de Geschiednis van de Pharmacie in Benelux or the Cercle Benelux d'Histoire de la Pharmacie. Mr Leslie Mathews has received the honour of being made an Honorary Member of the Kring for his great contribution to the history of pharmacy. At our Conference in April 1991, Dr Annet Bierman of Rotterdam, a member of BSHP, talked to us about pharmacy in the Netherlands in the 1840s, and Dr Juanita Burnby's paper "The Changing Role of the English Apothecary" has been published in the March 1991 number of the Cercle's *Bulletin.*

Our President Mr W.A. Jackson has been elected as a British member of the International Academy for the History of Pharmacy. The biennial meeting of the Academy was held in April of this year in Prague but unfortunately a previous engagement in the Isle of Man prevented him from receiving his medal and diploma personally. Dr Bierman,a new member for The Netherlands, happily was able to be present.

Mr Mervyn Madge, our committee member from the West Country, has been giving a series of lectures on the "Romantic History of Medicines" He has told his audiences about the mystical Mandrake and the use to which it was put by the Biblical Rachel, the chewing of Coca leaves in the Andes which in the course of time led to the use of Cocaine in the late nineteenth century in tonic and stimulant drinks until it was banned, and the discovery of Acetylsalicylic Acid by the German firm of Bayers.

Dr Christine Hillam,whose main field is the history of dentistry, has had published by the Liverpool University Press, her book *Brass Plate and Brazen Impudence:Dental Practice in the Provinces 1755–1855.*

In September 1990 an international colloqium was held in Paris on "The Pharmaceutical World's Press from its beginning to 1840." It was organised by *Memoires pharmaceutiques* to commemorate the 170th. anniversary of the *Vilna Pharmaceutical Diary (Pamietnik Farmaceutyczny Wilenski)* the first Polish journal devoted to theoretical and practical pharmacy and related sciences. Contributions were received from Spain, Sweden, Italy, U.S.A., Germany, Hungary, The Netherlands, France, Poland, Switzerland and this country. The papers have now been published in three volumes; in volume I is "The 'prehistoric' stage in British pharmaceutical journalism" by J.Burnby.

The Hans Sloane Memorial Lecture of The Society of Apothecaries of London was given by Dr W.E.Court B.Pharm., Ph.D.,M.Pharm.,FRPharmS.,FLS.,committee member and secretary, at the Chelsea Physic Garden on 4 June 1991. He chose for his title,"A matter of standards: The quest for authentic, reproducible and reliable plant drugs."

In January 1991 Dr Juanita Burnby was invited by the University of Marburg,Germany, to give a lecture on the English apothecary. The period most closely examined, that of the eighteenth century, enabled her to discuss both his pharmaceutical and medical roles.

Mr Matthews tells us that BSHP's *Guide to Sources in Pharmaceutical History* has received favourable mention in the recent number of *Revue d'Histoire de la Pharmacie.* One of its authors, Miss Ann Hutton, has been the moving spirit behind the Doncaster branch's historical exhibition celebrating the sesquicentenary.

The immediate past President of BSHP, Dr M.P.Earles, delivered the Gideon de Laune Lecture at the Society of Apothecaries, Blackfriars, on 25 April 1991. The Lecture this year was dedicated to the 150th.anniversary of the founding of the Royal Pharmaceutical Society, and was attended by Mrs Linda Stone, the President, and Mr John Ferguson, the Secretary and Registrar. Also present was Professor Glenn Sonnedecker, Emeritus Professor of the History of Pharmacy, University of Wisconsin and President of The International Academy for the History of Pharmacy.

The lecture was entitled, "Parliament,Poisons and the legitimate source of pharmaceutical Improvement". Dr Earles traced the development of the problem of the free sale of poisons in Britain from the seventeenth century to 1856 when it reached crisis point following two well publicised murders involving the use of strychnine.

The second part of the lecture studied the attempts made in the 1850s to control the sale of poisons. The speaker addressed the question as to why the Arsenic Act of 1851 was not extended to include substances of equal toxicity and known to be as dangerous as arsenic. There followed a study of the years 1856 to 1859 when Parliament attempted to control poisons by a system of licensing that threatened to undermine the

https://doi.org/10.24355/dbbs.084-201803060820

endeavours of the newly founded Pharmaceutical Society to raise the standards and status of pharmacy practice.

At the end of the meeting the President of the Pharmaceutical Society presented the lecturer and the Chairman with copies of the book *Royal Pharmaceutical Society of Great Britain – A Political and Social History,* by S.W.F.Holloway which was commissioned to mark the sesquicentenary.

"Mr Earl's Medical Shop".

This interesting paper delivered to BSHP on 1 May 1991 by Miss E.Lewis has now been published in co-authorship with Mr W.Boorman in the journal *Post-Medieval Archaeology,* (Vol.24,pp.125–155) under the title "Fittings from an eighteenth-century Pharmacy in Winchester".

The surviving fittings included a remarkable set of 107 drug drawers – 81 small and 26 large. Although they came to Winchester Museum in 1980 from Hunt's pharmacy (founded 1861 by Richard Hunt) of 45,High Street, the fittings have been traced back to the 'Medicinal Shop' of George Earle,druggist and chymist, at 105,High Street (then No.58) the opening of which was announced in the *Hampshire Chronicle* of May 1774. In 1761 Earl(e) had been bound for seven years to Philip Newbolt, a successful druggist and oilman who was also a member of the Board of Governors of Winchester Hospital.

The contents of the drawers could be classified into three main types of substances:

Artists' pigments and materials (28 drawers).

Proprietary and patent medicines.

Medicinal materials for use as simples, or in compounded preparations –which by far the largest category.

The article ends with a very good catalogue of the fittings and equipment with the abbreviated titles expanded and translated where necessary.

On 9 March 1786, George Earle of the parish of St. Laurence, Winchester, druggist, took out an insurance with *Sun Fire.* (Guildhall Library, Vol.334,No.516077) for £,1,800.His house was valued at £500, the household goods at £150 and his utensils and stock at £400. He also possessed the adjoining house which he rented out which was also valued at £500, a brewhouse with a storehouse over it in the yard, a stable and another storehouse. It was carefully noted, because of the fire risk, that all were of brick and were tiled.

Book Review.

Chemical Pharmacy enters the University: *Johannes Hartmann and the Didactic Care of "Chymiatria" in the Early Seventeenth Century.* Bruce T. Moran. pp.88. 1991. American Institute of the History of Pharmacy.
ISBN 0-931292-23-9. Pbk. (No price given).

The Paracelsian tradition and practice presented a mystical theoretical aspect that was completely separated from the practical pharmaceutical recipes. Textbooks of a technical-alchemical nature such as those of the practical chemists, Andreas Libavius' *Alchymia* (1597) and Oswald Croll's *Basilica Chymicum* (1609), and Jean Beguin's laboratory manual *Tyrocinum Chymicum* (1610) pointed the way to a clearly defined discipline, "Chymiatria" or chemical pharmacy.

Despite efforts to establish this discpline in Paris, the honour of being the first *Professor publicus chymiatriae* rested with Johannes Hartmann (1568–1631) at the University of Marburg in 1609–1621.

Moran divides his scholarly discussion into two parts, "Chymiatria" at Marburg and its theoretical foundations, and the practical component of academic "Chymiatria". Hartmann's early career in mathematics and subsequent switch to medicine and Paracelsian alchemy is described with reference to the importance of influential patronage at the court of the Landgrave Moritz of Hesse.

Discussing Hartmann's Entrance Oration, Moran reveals a bitter struggle between Hartmann and Libavius who had criticised Hartmann's adoption of the "vital philosophy" enunciated by Petrus Severinus (1542–1602). Detailed examination of this argument affords an excellent insight into Paracelsian philosophy and the differing views of the participants. Hartmann's belief in the astral nature of disease, in the double anatomy of man and in the action of medicines by the expulsion of the causes of disease are considered. Hartmann, nevertheless, is shewn as an essentially practical man who had no qualms in producing something physical to promote and sell profitably.

An interesting section of Moran's monograph outlines, by means of a laboratory notebook/diary, the practical course at Marburg in 1615/1616. The notebook describes rules concerning attendance, behaviour, allegiance, responsibilty, confidentiality and dress, as well as the contract between student and instructor which included financial matters, secrecy and the course of instruction. Preparations named included opium, laudanum opiatum, English potable gold, and derived chemical preparations. Laudanum,ladanum and ledanum are discussed; were they derived from cistus flowers, ambergris and mace, or opium? Details are also given of magisteries of pearls and corals, antimony diaphoretics, purgatives and diuretics.

Moran's work is well referenced by using informative foot-notes and it reveals a sound empirical basis divorced from Hartmann's Severinus-based Paracelsian philosophy. Chemical pharmacy was essentially a practical discipline.

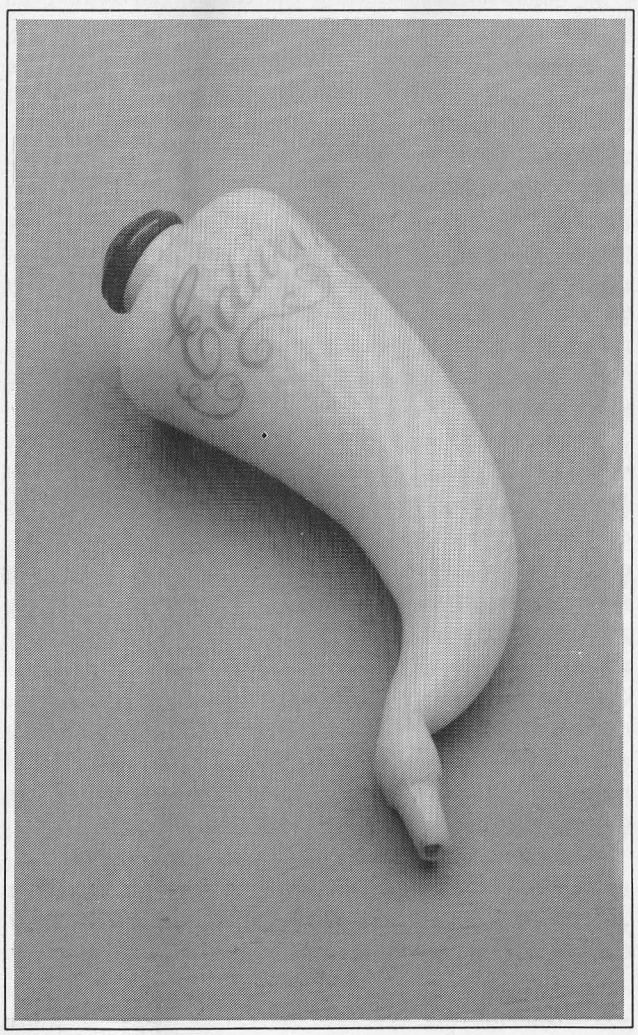
W.E.Court.

https://doi.org/10.24355/dbbs.084-201803060820

Edward's Patent Feeding Bottle

W.A.Jackson

In 1857 Henry Edwards of Dalston, Middlesex, patented "An Improved Vessel or Feeder for Administering Food and Medicine."(1) It was to be made in the form of an inverted cone, the apex of which was curved, and could either be left open or fitted with an artificial teat, stop-cock, nozzle or spout, depending on the use for which it was intended. The top of the cone was covered except for an opening which could be used for filling the vessel, and also to regulate the flow of liquid from the narrow end by controlling the rate at which air was admitted by means of thumb or finger. In use, the mouthpiece was kept lower than the wide end, ensuring that no air was sucked in with the liquid.



Edward's Patent Feeding Bottle (Author's Collection)

Several drawings are appended to the patent illustrating different shapes for the mouthpiece. The infant feeding bottle had one with a collar for the attachment of an artificial teat. Another shows one similar to that in the accompanying photograph which is said to be suitable for "an infant, invalid or other person to imbibe liquid food or medicine while in a recumbent position or otherwise." Yet another is suitable for giving medicine to cattle or other animals, the vessel being made of tin instead of glass in this case, and finally there is one said to be suitable for the inhalalation of "vapours of ether, vinegar, and other volatilizable (sic) medicines." An advertisement in The *Chemist and Druggist* (2) shows it being used for the latter purpose; in this case the bottle is held horizontally so that the mouthpiece is slightly higher than the aperture at the wide end. The same report illustrates a metal stand invented by Mr Edwards which supports the bottle in a horizontal position over a small lamp or night-light in order to keep the food warm during the night.

The feeding bottles are said to hold about half or three-quarters of a pint of liquid, but the medicine vessels were much smaller than this and were made from coloured glass. The bottle illustrated, which has the words "Edwards Patent" etched round the top, is made from opal glass and has a capacity of between three and four fluid ounces, and so presumably can be classed as one of these. This is confirmed by the fact that the boxwood-topped stopper has no vent-hole as one would expect to find in an infant feeder.

In fact, in 1858 Edwards had taken out a patent for "Improvements in Stoppers for Feeding Bottles and other Vessels."(3) These were designed with a central conical plug which was held in position by an india-rubber spring. It was connected to the outside of the stopper by a stem, and when pressure was applied to this it opened the valve to allow air to enter the bottle. I have yet to find any surviving examples of these.

An infant feeding bottle of similar design to Edward's Patent is illustrated in *Infantilia* (4), but I do not know of any which can be positively identified as having been made for him.

References.

(1) Patent No.2603, 10 October 1857. "An Improved Vessel orFeeder for Administering Food and Medicines."
(2) *Chem. Drugg.*, 15 December 1866,p.200.
(3) Patent No.330, 20 February 1858. "Improvements in Stoppers for Feeding Bottles and other Vessels."
(4) A.Haskell & M.Lewis, *Infantilia. The Archaeology of the Nursery.* Illustrated by S.Lewis. London,Dobson,1971,p.42.

https://doi.org/10.24355/dbbs.084-201803060820

General Practice Pharmacy in the 1840s. (Part Two)

By Dr W.E.Court.

Examples from the book of recipes indicate the wide range of the chemists' activities in those days.

Colours for Show Glasses.

Blue:	Aerugo Oris, Spt.C.C.,a small quantity, Aq.q.s.
Scarlet:	Coccinella, Acid.Sulph. et Aq.Font. q.s.
Green:	Pure Copper Filings,any quantity, Aq. Fortis q.s. and Aq. Font.; to make it Blue add Aq.Ammon.
Yellow:	Tr.Ferri Mur. and Aqua.
Buff:	Burnt Sugar, Acid.Sulph. et Aq.Font.
Purple:	Coccinella et Sal.Tartar.,Aq.Font.q.s.; To change it to Orange add Acid.Sulph.q.s.
Yellow:	Sang.Dracon. et Acid.Sulph.,Aq.Font.q.s.

No reason is suggested for the range of colours offered. Blue was prepared from verdigris or copper acetate (Aerugo) and ammonia (Spt.C.C.=Spiritus Cornu Cervi Rectificatus = ammonium carbonate solution); green used copper nitrate; scarlet colour was extracted from ladybirds of the genus *Coccinella*, pH changes with acid yielded scarlet or orange, and with Sal.Tartar.(potassium carbonate) produced purple. Dragon's Blood(Sang.Dracon.= the red resin from Indonesian palms of the genus *Daemonorops*) and sulphuric acid yielded a yellow colour; alternatively iron muriate (ferric chloride) could be employed. An acid solution of burnt sugar offered a buff coloured solution.

The vehicle was always Aqua Fontana,spring or tap water, and the stability of the colours must have presented problems.

Antispasmodic Mixture.

Aether sulph.	ʒij.	
Sp.Ammon.Comp.	ʒiss.	
Tr.Opii	gtt.xxx.	
Mist.Camphor	ʒvj.	Misce.

Take two tablespoonfuls every 3 or 4 hours for Spasmodic, Cholic or Asthma. An excellent remedy for Spasms of the Stomach.

In this mixture sulphuric ether, made by the careful but hazardous distillation of rectified spirit and sulphuric acid followed by the addition of potassium carbonate, was a stimulant and antispasmodic. Compound Spirit of Ammonia, known familiarly as Sal. Volatile, and comprising ammonium chloride, potassium carbonate, cinnamon bark, clove buds and lemon peel (or their oils) in rectified spirit and water was a stimulant and restorative. Opium tincture was the analgesic component with antispasmodic activity, and Mixture of Camphor, formulated with camphor, rectified spirit and water, added to the antispasmodic action. The claim that it was an excellent remedy for spasms of the stomach was justified.

Whitworth's Mixture.

Gum.Camphor	ʒss.	
S.V.R.	lb.j	
Ol.Origani	ʒss.	
Ol.Rorismar.	ʒij.	
Rad.Anchusae	ʒss.	Misce.

Named medicines gained reputations, justified or otherwise, and were often advertised by means of handbills or notices. Such medicines were frequently copied. One such was Whitworth's Mixture, also known as The Whitworth Bottle or Whitworth's Red Bottle, a mixture of variable formulae. Its effect would be expectorant, carminative and antispasmodic; it was recommended for pains, cramp and inflammation of the stomach in humans and, in larger doses,for belly-ache (so-called) in horses.(Fox,1871).

Camphor, obtained from the Camphor Laurel (*Cinnamomum camphora* (L.) Nees & Eberm.) was more popular in early Victorian times than today. The Oil of Origanum from *Origanum vulgare* (L.), the Winter Marjoram, was confused with Oil of Thyme and often so called, although the true Oil of Thyme (*Thymus vulgaris* (L.) is richer in thymol rather than carvacrol. Fortunately both compounds are spasmolytics. Rorismar (Oleum Roris Marini) from *Rosmarinus officinalis* (L.), another Labiatous species, is a typically carminative oil with diaphoretic and stomachic actions. Red Anchusa or Alkanet Root (*Anchusa tinctoria* (L.)Tausch) was probably used for its red dye, a mixture of lipophilic isohexenylnaphthazarin pigments, although Dioscorides considered it as a good wound healer; modern research confirms his suggestions. In Victorian times, alkanet root was used as red colouring for lip salves, plasters, creams etc., and also to yield spurious port wine colours.(Gray,1848).

Hooper's Pills.

Aloes Socot.	lb.ss.	
Gum. Myrrh	ʒiv.	
Gum. Galbani	ʒij.	
Sal. Martis	ʒij.	
Macis Opt	ʒj.	
Ol. Succini	ʒss.	
Syr. Simp	q.s	Ft. Massa.

Another famous named product was Hooper's Pills, female corrective pills for which many formulae were available.

https://doi.org/10.24355/dbbs.084-201803060820

Socotrine Aloes and Sal Martis (sulphate of iron, London Pharmacopoeia, 1746) are the main laxatives in this formulation; Ol.Succini or Oil of Amber is also a powerful local irritant. The Mace from the nutmeg yields a carminative volatile oil that opposes the griping effect of the purgatives. Myrrh oleo-gum-resin and Galbanum gum-resin provide some stimulant,carminative and antispasmodic action.

These pills would be effective, but being massed with syrup, would not keep well.

Dr Anderson's Worm Cakes.

Sacch.Alb	lb.j.	
Gum.Scammon.Allepo	ʒij.	
Calomel Ppt	ʒiss.	
Mucil. Tragac	ʒiv.	
Aq. Font	q.s	ʒss. to a cake.

Dr Anderson's Worm Cakes were designed to make the medicine more palatable, so sugar and gum tragacanth formed the basis for the powerful purgative actions of the glycosidal resins of Scammony and of the calomel or mercurous chloride. A medicine of its time, it would not be accepted today.

Pulv. Febrifuge.

Pulv. Rhei Opt	ʒij.	
Pulv. Jalapa	ʒij.	
Magnes. Alb	ʒij.	
Calomel Ppt	℈ij	Misce.

Dose for a child 2 years old, gr.xij; for 4 & 5 years. gr.xiv; for 6 & 7 years, ℈j; for 8 & 9 years, gr.xxiv; 11 & 12 years, gr.xxviij; 13 and upwards ʒss.

For fevers children had to take mercury as well. The purgation of the jalap resins and calomel would have been offset by the astringent action of the rhubarb tannins. Rhubarb anthracene glycosides are laxative and White Magnesia (light carbonate of magnesium) is both antacid and laxative.

The use of purgatives was a feature of early Victorian medicine, indicating that the old humoralist ideas of venesection, emesis, purgation,and opium and bark were still practised in a modified form.

For the Piles.

Crem. Tart., Sulph. Praecip	aa.ʒj.
Pulv. Jalap	ʒss.
Pulv. Nitri	℈iij.

A teaspoonful to be taken at bedtime when costive in a little treacle.

Pulv. Galla Carul	ʒj.	
Adeps Suillae	ʒvij.	Misce.

And rub the parts affected every night at bedtime.

The treatment for piles was a simple powder given with treacle, and an astringent ointment. The powder comprised Cream of Tartar (potassium hydrogen tartrate), a mildly diuretic saline purgative, precipitated sulphur, a mild gastro-intestinal irritant with a consequent mild laxative action, jalap, a powerful glycosidal purgative, and nitre (potassium nitrate), a saline diuretic. The ointment contained best powdered galls,tannin-rich and so astringent, and the vehicle was lard which is readily absorbed through the skin. The powder was only used if the patient was costive, i.e.constipated.

Emp. Lytharg.

Ol. Ol. Sec	lb.iv.
Pulv. Lytharg.Subt	lb.iiss.
Aq. Bull	q.s.

N.B. For common plasters the Ol. Palid. will do.

For lead plasters second or inferior olive oil was used, although for common plasters pale oil would suffice. Litharge (lead monoxide) is orange in colour. The plaster was applied to excoriations or abrasions and for keeping wound edges together. Lead plaster was used as a base for some other plasters.

Tinct. Odontalgica.

Rad. Pyreth.	ʒiij.
Gran. Parad.	ʒij.
Myrrh	ʒj.
Gum. Camphor	ʒj.
Gum. Opii	ʒj.
S.V.R.	lb.ss.

Dental hygiene increased in importance in the early nineteenth century and chemists supplied the public with suitable dental preparations such as this Odontalgic Tincture containing the counter-irritant Pyrethrum Root, antiseptic Myrrh, the hot, aromatic stimulant Guinea Grains (Grains of Paradise), the disinfectant and anti-infective Camphor and the analgesic Opium; Opium was freely available and not controlled by law.

The chemists' involvement with dentistry varied considerably but toothdrawing was very common. It has been reported that an 1835 chemist was making £200 per annum from toothdrawing at a fee of 1s. per tooth. (Hillam,1988). Some chemists and druggists were so dedicated to dentistry that they ulti-mately forsook pharmacy altogether and registered as dentists under the Dentists' Act of 1878.

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Lip Salve of Peru.

Oxung. Porcin.	ʒij.
Cera Alb.	ʒij.
Ol. Amygd.Dulc.	ʒj.
Rad. Anchusae	ʒij.
Cetacei	ʒss.
Bals. Peru.	ʒij.

Cosmetic and semi-cosmetic preparations including creams, lotions, perfumes and salves were manufactured in the chemist's shop during the nineteenth century.

A typical lip salve was prepared using a base of hog's lard (Oxung. Porcin.), white beeswax (Cera Alb.), spermaceti (Cetacei) and Sweet Oil of Almonds (Ol.Amygd.Dulc.) with Alkanet Root providing red colouring, and Balsam of Peru as a pleasant smelling antiseptic.

Red Ink.

Rass. Braziel	ʒiv.
Sal. Tartar.	ʒj.
Alum Rupel	ʒj.

Boil in Aq.Font.lb.ij to lb.j and add while warm Sacch.Alb. ʒj & Pulv.Gum Arab. ʒj.

The self-reliant nature of the 1840s practice included the preparation of the domestic essentials. Thus Red Ink was formulated with Red Sanders Wood (Santalinum rubrum, Bresille Rood or Ruby Wood) from the Indian tree *Pterocarpus santalinus* (L.); Rass. Braziel indicated scraped Sanders Wood. The wood was boiled with Cream of Tartar (potassium acid tartrate) and rock or Roch alum, large lumps of colourless alum, and then white sugar and acacia gum (Gum Arabic) added to yield a more viscous product.

Sealing Wax for Corks.

Resin Flav	lb.ss.	
Cera Flav	ʒij.	
Orange Lead	ʒiss.	Misce.

Sealing wax for use in the shop was also made on the premises. Yellow beeswax and yellow resin (*Xanthorrhoea* resin from New Holland, or Colphony resin) was coloured with orange lead (either litharge or lead dichromate).

One annoyance for the chemist and druggist was the tax on patent medicines – the "Medicamenta Orcana",. The first patented medicines were Nehemiah Grew's "Cathartic Salt of Epsom Water"(1698), Timothy Byfield's "Sal Oleosum Volatile" formulated in 1711 and Richard Stoughton's "Stoughton's Elixir Magnum Stomachi" of 1712. By 1841 about 112 patents had been recorded but many had lapsed. An outstanding example was Thomas Savory's much copied efferevescent aperient draught, better known as Seidlitz Powder and recorded in 1815.

Quack medicines, effective or otherwise, were considered proper objects of taxation and the first tax upon them was introduced in 1783. By that year only 70 patents had been registered but the trade in nostrums and proprietary medicines, often by itinerant travellers, was considerable.

The tax was applied to all persons who sold medicines and were not regularly bred to the profession of doctors and apothecaries. Therefore the chemists and druggists needed a licence; the apothecaries, who were in the majority, did not. The 1783 Medicine Stamp Act was unsatisfactory and was quickly re-drafted. The resultant 1785 Act with modifications remained in force until 1941. The apothecaries lost their privileged position, the only exemptions being for crude drugs and dispensed medicines. Thus all substances and preparations recommended as medicines for prevention, cure and relief were liable to tax.

The 1802 Medicine Stamp Act listed 450 such preparations and stipulated that labels called medicine stamps should be pasted on appropriate products in such a manner that the stamp would be broken when the package, pot or bottle was opened. Consequently, the long-suffering apprentices (including me in 1937) endured the monotonous ritual of pasting medicine stamps on the master's secret remedies.

The tax on medicines was not at all popular. By 1830 about forty persons per month were being fined £1 to £8 for offences although,even by 1888,the phrase "patent medicine" had not been judicially interpreted. Proprietary medicines increased in number and popularity throughout the nineteenth century. Although exemption was given in 1833 to waters such as Soda Water, a popular chemist's line, the stamp tax remained unpopular until its repeal.

In the eighteenth and early nineteenth centuries, an era when physicians and apothecaries rarely conducted careful physical examinations, there was disillusionment with the excesses of medical practice such as venesection and cupping. and with the high cost of medical attention. Rather than proprietary medicines, for many common people the home remedies encouraged by the Friendly Botanico-Medical Societies, particularly established in the north of England in the 1830s,or published in tracts and books such as *Enquire Within Upon Everything* which had reached its 88th. edition by 1893, were the answer to their problems. Therefore the chemist became the purveyor of crude drugs such as dandelion root, burdock, lobelia, pennyroyal, elecampane etc., as well as the supplier of preparations such as Opodeldoc (camphorated soap liniment), Paregoric (compound tincture of camphor and opium), and laudanum (tincture of opium). The ha'porth of this and two penn'orth of that had arrived.

https://doi.org/10.24355/dbbs.084-201803060820

The chemist and druggist did not make his living entirely from pharmaceutical drugs and preparations. In the shop one often found tea,coffee,curry powders,foods such as vermicelli, cigars, aerated waters, drinks such as lemonade, ginger beer,etc., as well as dyes, paints, enamels and soaps. (Crellin, 1979). Toothbrushes, brushes, combs, spoons, feeding cups, slipper bedpans, enema syringes, urinals, glass and earthernware feeding bottles, toothpicks and shaving brushes were also in stock.

Then, as now, some sidelines seemed essential to the survival of the business. The 1840s pharmacist diversified into grocery, general dealing and postmaster duties (Schwitzer, 1980). Dentistry and cupping were also possible. Photography which commenced in 1820, developed as a result of W.H.Fox Talbot's (1800–1877) researches and really flourished later in the century consequent on the advent of the roll film in 1864. The pharmacist was able to use his technical skills to keep abreast with the techniques of developing and printing.

The range of work was diverse as were the businesses themselves. City practice differed considerably from the small country town business, and the physical conditions of the shops in the early nineteenth century are difficult to assess. Reports from the Censors appointed by the Royal College Physicians suggest that in the early 1800s standards varied widely from "dirty and slovenly shop", "rather a second-rate shop" and "no shop can be worse" to "an Excellent house". Other notes referred to "Scales not clean" and "Scales not accurate nor Measures". The proprietors too came in for descriptions such as "an old Shopkeeper", "not civil", "the Master very scientific and informed" and "there was a want of Courtesy on the part of the Master".(Dopson,1955).

The standing of the 1840s chemist and druggist is difficult to assess. The financial rewards varied widely and salaries of £25 to £80 per annum "indoors" and £120 "outdoors" may seem paltry today but labour was cheap. Census records confirm the practice of "living in" for apprentices and assistants and indicate that the chemist usually employed one or two domestic servants.

Entrepreneurial flair was important, so some fared very well, others scraped a meagre living, and some failed badly. The available prescriptions and formulae do suggest that there was always a sound empirical tradition that enabled our forefathers to pursue their calling with confidence. Their advice frequently prevented their customers from buying expensive and well-advertised nostrums of dubious value and built up trust between them. Because of the long working hours, the chemist was always there as a readily available medical consultant, especially for the ordinary public, as a veterinary expert for the farming community, and as a learned adviser to his not-so-clever customers.

We should honour that worthy tradition of professional service to our general public.

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Errata.

Volume 21,No.1,p.3. The retail price for Cowen & Helfand's *Pharmacy.An Illustrated History* is £55.

Ibid.,p.5. The date of 1688 in the penultimate paragraph should read 1678.

The production of this Pharmaceutical Historian is borne by

Merrell Medicines
Confidence in pharmacy

MERREL DOW PHARMACEUTICALS LIMITED.,
Lakeside House, Stockey Park, Uxbridge, Middlesex UB11 1BE

Typeset by: Action Labels Ltd, Ashbourne, Derbyshire. (0335) 300425
Printed by: Inprint Services, Ashbourne, Derbyshire. (0335) 44083

https://doi.org/10.24355/dbbs.084-201803060820

PHARMACEUTICAL HISTORIAN

Vol 21 No. 4
November 1991 £1.50

Journal of the BRITISH SOCIETY FOR THE HISTORY OF PHARMACY. Established 1967.
Contributions to the Editor: Dr. J. Burnby B.Pharm., PhD., FRPharmS., FSA. 36 York Place, Edinburgh. EH1 3HU

Contents.

Diary Dates.

Wednesday, 12 February 1992.

The Foundation Lecture.
Mr T.R.Irwin, ''Marion Merrell Dow - Historical Perspectives of a 'merging Company'''.

Tuesday, 10 March 1992.

Dr Anne Young, ''Domestic Medicine Chests: Home Pharmacy in the 19th. Century.''

Friday - Sunday, 3-5 April 1992.

The Spring Conference.
Chimney House Hotel, Sandbach, Cheshire.
Provisional Programme.

Friday, 3 April 1992.

Afternoon: Registration.
Evening: Buffet at Crewe Hall, Wellcome Foundation.
Speaker: Dr D.E. Allen of the Wellcome Institute ''Herbal Medicine without the herbals: a parallel tradition?''

Saturday, 4 April 1992.

Morning: Conference Papers.
Dr A.I. Bierman, ''Review of work and research into Pharmaceutical History in the Low Countries'' together with a historical tour of Holland illustrated with slides.

Dr J. Burnby, ''William Stukeley, M.D.(Cantab.) and the apothecaries.''
Afternoon: Visit to the Salt Museum, Northwich.
Evening: Dinner.
Speaker: Mr W.A.Jackson. ''Magpie Land: a look at Cheshire.''

Sunday, 5 April 1992.

Morning: Annual General Meeting.
Conference Papers.
Dr Geoffrey G. Benson of the Pharmacy Department, University of Manchester, ''The Manchester Pharmaceutical Association: origins and early history.''

Dr W.E. Court, ''John Gerard and his herbal.''
Lunch and Conference closes.

The hotel is offering Conference members an extra nights accomodation, bed and breakfast, at £30.

Society Members' Activities.

Guildhall Reception.

At the reception given by the Corporation of London at the Guildhall on 1 October 1991 to mark the 150th. anniversary of the Royal Pharmaceutical Society, the British Society for the History of Pharmacy was represented by the President Mr W.A.Jackson and his wife. Other guests included Miss K.Arnold-Forster, Mr K.J.Gray, Miss D.A. Hutton, Miss D.A.Jones, Mr A.G.M.Madge, Mr L.G.Matthews and Miss P.M.North.

https://doi.org/10.24355/dbbs.084-201803060820

Merrell Dow Pharmaceuticals have brought out a new publication, Pharmacists' World which, as Mr Irwin writes, "is concerned with all aspects of the pharmacists' life, within and beyond working hours." Included in the first issue is an article by Mervyn Madge with the title of "Put down your Pestles, take up your Pens!"

Mr Madge has recently been made Chairman of the British Homeopathic Association.

Dr J. Burnby was a guest speaker at the Society's Chiltern region sesquicentenary conference in Oxford on 22 September 1991 in which "Pharmacy, Past, Present and Future" was examined. She spoke of pharmacy in the mid-nineteenth century and the problems which faced the newly organised profession.

The Liverpool Medical History Society has several links with BSHP. Dr Christine Hillam has the arduous task of being both secretary and treasurer, whilst both Dr W.E. Court and Dr J. Burnby have read papers to the society. Both have been published in their journal, *Medical Historian,* Dr Court's "The Materia Medica of the Nineteenth Century" appeared in the 1988 number and Dr Burnby's "The Apothecary and Developments in the practice of Midwifery" in that of 1991. Copies of this journal are available at £2.50 per issue from Dr Hillam.

Kevin Coates: one-man show.

The presidential badge,designed by Kevin Coates and presented to BSHP by the Wellcome Foundation in 1983, was included in a recent exhibition of the artist's work held at Goldsmiths' Hall, Foster Lane, London. Over a hundred works were exhibited including pieces loaned by HRH The Prince of Wales, the Dean of Lichfield Cathedral, the Leeds Castle Foundation, the Victoria and Albert Museum, the Goldsmiths' Company and private collectors.

Kevin Coates studied jewellery design at the Central School of Art. During the time he was there he adopted the baroque mandolin as a special study and began to play with "Baroque Concerte". He has since become well known as a jeweller and a contributor to the field of early music. In 1979 he was awarded a doctorate for a thesis on the use of mathematics in musical instrument design. His fascination with mathematics, proportion, perspective and the mystery of numbers is evident in many of the pieces of finely crafted jewellery on display in the exhibition.

The catalogue entry for the BSHP badge, illustrated with a colour photograph and the original artist's drawings, describes it as an elliptical-sectional cylinder carved from greenish glass. The cylinder is occupied by a modelled figure of a mediaeval apothecary enthroned, with open book, pestle and mortar, upon a fourteenth century seat. The figure modelled in rich yellow metal and the delicate colour scheme of gold, green and mauve is described as being particularly attractive.

The artist comments, "I projected him [the apothecary] and his splendid gothic chair, into three dimensions and set him against suitably botanical colours of green and foxglove mauve (to invoke the history and origins of pharmacy) and that essential pharmacological material of glass."

M.P.Earles.

The British Pharmaceutical Conference, Liverpool. History of Pharmacy Session, 12 September 1991.

In the first part of the History of Pharmacy Session a paper given by Dr Christine Hillam on "Robert Wooffendale, chemist, druggist and dentist: the making of a reputation" was well received by an audience which included several overseas delegates.

After tea a Pharmaceutical Antiques Roadshow was held, the artefacts being assessed by Miss D.A.Hutton and Mr W.A.Jackson. One member of the audience, Mr John Howard Spencer of Hoylake, Wirral, who had been a registered pharmacist for seventy years, had brought along his apprenticeship indenture dated 1911 and a bronze medal which he was awarded in 1921. Other items were a bell metal mortar made in 1717 by Ralph Ashton of Wigan, a nineteenth century copy of a seventeenth century Dutch mortar and an ox horn used as a container for importing civet, a perfume fixative. Two silver nipple shields made in 1790 and 1804 were of particular interest as the enlarged holes and silver solder on the rim suggested that it might have been used as a tea strainer at one time. Other metal items were an eighteenth century pewter feeding bottle, a tablet triturate mould, a small pan with extended lip (probably designed for pouring suppository mass into a mould) and a tinplate Bilson's pastille mould.

A nineteenth century polychrome bears grease pot lid was compared with a modern forgery made by pasting a coloured paper picture on an old lid and then covering it with acrylic resin. A cased glass measure graduated in single minims, and a nineteenth century fake Turlington's Balsam bottle were also examined.

The audience contributed to a lively discussion on these objects and regretfully the meeting had to be closed as it was after 5.00 PM.

https://doi.org/10.24355/dbbs.084-201803060820

PHARMACY IN THE 1840s: The wholesale chemists and druggists.

By A.F.Morson.

It is a privilege and a pleasure to contribute to this Society's conference celebrating the sesquicentenniel anniversary of the Royal Pharmaceutical Society of Great Britain. My great great grandfather, T.N.R.Morson, played an important part in the Pharmaceutical Society's first thirty years, beginning as Bell's right hand man, to use Thomas Hyde Hills' phrase, and continuing to guide its development after Bell's death in 1859. Daniel Hanbury welcomed Morson's appointment as President at that time, writing: ''From his reputation as a scientific man and the other qualifications he possesses, the post, it is thought is well filled up''. Morson's career as a chemist was deeply affected by his meeting at the City Philosophical Society in 1817 with Michael Faraday, the 200th anniversary of whose birth we celebrate this year.

It is not as a scientist only that Morson made his reputation. He was at the forefront of a large number of manufacturers and wholesalers who exploited the circum-stances created by the early nineteenth century business conditions.

The 1840s were a time of rapid change for the pharmacist,especially for those in manufacture and wholesaling, because of the technological and population changes which had their origin in the great discoveries in chemistry earlier in the century and in the changes wrought by the Industrial Revolution which was in full spate. By 1822 some 3000 tons a year of sulphuric acid was being produced - a yardstick not only of chemical industry activity but of technical industry generally. Firms in London, the Midlands and especially the North East of England and South West of Scotland were producing quite a diverse range of chemicals which, with the solvents produced by distillers of various kinds, provided the chemicals needed for the industrial expoitation of the discoveries in medical chemistry which, starting in 1818 with what may be called the re-discovery of morphine, made new medicines available.

What is just as important was the aim of making medicines less expensive, aims announced by both French and British chemists of the the 1830s. Additionally the administration of medicines became more conveneient, that is palatable and simple. Nothing illustrates this better than quinine.

Cinchona bark was described by John Savory as killing many fever-ridden patients because of the large volume of ground-up bark which needed top be taken by a patient in order to provide him with a clinical dose of quinine.(1) Morson wrote in his first technical paper, announcing the availablity in Britain of quinine sulphate, that he was providing an elegant solution to the problem; he was replacing an evil tasting, bitter, thick soup with a small pill. It is not surprising that some doctors welcomed this advance, but others in their jealousy and ignorance, especially when there was the possibility of pharmacists becoming organised, behaved badly. These doctors felt threatened. Their responses to patients had been for years consistent and highly standardised:- vomit, purge, bleed.

It is little wonder that opium, (that ''most important medicine'' according to Pereira, and the only effective analgesic until the arrival of Aspirin) became ever more popular as wages rose so that a little raw opium or laudanum could be afforded. Better by far than a high cost visit to a doctor. At the same time, Robiquet, Henry & Plisson in Paris, and Gregory in Edinburgh, turned their considerable skills towards making morphine both more effective and to use Robiquet'phrase, ''more affordable''. Even though his 1822 process was still in use, he realised in 1831 that even with care his morphine contained a small amount of narcotine. However, by the middle of the 1830s process development had succeeded in eliminating this stimulant and had also reduced the cost of morphine.

The great strides in phytochemistry of the 1820s were exploited in the 1830s by developments in processing so that throughout Europe and America a greater range of medicines was available by 1840 than ever before.

At the same time as availability and demand were growing, new technology was applied to distribution with the expansion of the railways. Following the opening of lines in the north, the 1830s saw the building of railways from London, to Southampton and to Birmingham in 1838, in 1841 to Brighton. Transport was no longer dependent on the horse.

Yet another additional factor was standardisation. One effect of the 1836 Pharmacopoeia Londinensis, drawn up by that great man, Richard Phillips, catching up on some ten years of inaction, was the first scientific attempt to measure and standardise the strength of acids. One consequence was that there grew up some confidence that medicines of the same name would actually be the same product. Firms like Howards, Frederick Allen, and Dunn & Co.,who started in 1844, (the other two at the beginning of the century) made pure mineral acids to the new standards.

All these factors combined to make available throughout large centres of rapidly growing population, new medicines and better versions of existing ones. It is not suggested that there were no national or international firms before 1840 - far from it. Pelletier sold quinine from his large output in 1822 in London in competition with Morson, whose quinine was already in Bristol and arrived in Liverpool soon after.(2) By 1830 Morson's Tincture of Morphine Hydro-chloride was being sold as a proprietary, and his Chlorodyne was to follow in the 1840s, to be nationally distributed for eighty years.(3) Nevertheless, I believe these were isolated cases and that medicines, apart from the nationally advertised proprietaries such as the antacids, laxatives and mineral

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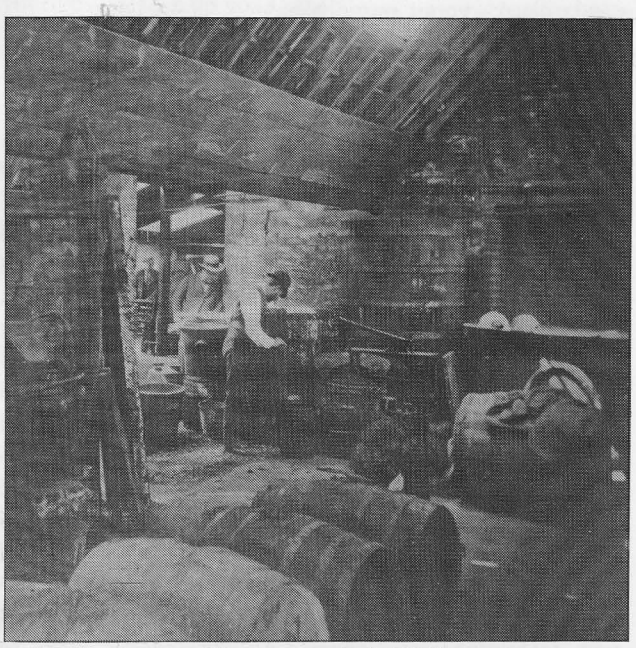
waters, were locally produced and sometimes regionally distributed until the changes I have described provided chemists with a unique opportunity.

Manufacturing



Hornsey works in 1870.

The greatest manufacturer, who had been in business for decades, was Apothecaries' Hall but its products were mainly used in London if one excludes its contracts with the Navy, Army and the East India Company. After the fire in 1796, they rebuilt their ''manufactory'' which included a 1,500 square foot laboratory with other sections for distillation and evaporation, as well as a large mortar room essential for grinding drugs used in the manufacture of tinctures and extracts.(4) Their facilities were larger than those of the Pharmacie Centrale which served all the Paris hospitals. What Jacob Bell described as ''the G.P.'s shop'' had a large business with those doctors who were members of the London Society of Apothecaries and were also subscribers to the Laboratory Stock which gave them the right to buy medicines for their own use at a discount and also to a dividend derived from the profits of the undertaking.

Sales to these general practitioners in 1840 amounted to £4,688 8s.ld. and had fallen at the end of the decade to £3,484 14s.4d.(5) This was the continuation of a trend which had started in the 1820s. Pharmacists were beginning to take business away from the dispensing general practitioner.

Retail sales also fell by some 17%, from £6,374 to £5,279. However, The total business of the Apothecaries' Company rose from just under £40,000 to £52,500 in the decade due to their monopoly of East India Company business which doubled to £28,000, so raising profits from £5,350 to £9,000, some 14% of turnover.

The reputation of Duncan,Flockhart, Macfarlans, and T.& H. Smith was almost unknown outside Scotland until the successes of Scottish doctors and chemists with opiate alkaloids, chloroform and other substances made them all into national businesses in the 1840s. Pharmaceutical manufacturers did not confine themselves to human medicines, for example Smith's of Norwich, established in 1790, were not only wholesalers of medicines but also of preparations for farm animals, and their activity included some manufacture.

As alkaloids, patent medicines, galenicals and later photographic and technical chemicals became needed in greater quantities, so the business of all these firms expanded. After a slow start due to the popularity of the well established laudanum, morphine and its salts were regularly prescribed by 1840. Galenicals covered a huge range, firms like Ransom which decided to start manufacture in 1847, having hundreds of products.(6) They grew many of the plants on their own land and also used berries, roots, even petals, gathered by the local populace who scoured the countryside round Hitchin, the children bringing what they could carry in their aprons and caps. In London, Stafford Allen who started earlier in 1833, used their horticultural skills to provide the materials for their business as well as importing bales of seeds, barks, spices and plants used as materia medica.

Pharmaceutical chemists made contributions to the earliest days of pure chemistry. Many sold what were called ''chemical tests'', sometimes in cabinets. While these could have been used as early versions of chemical reagents, they were also used by the many whose interest in chemistry was as a hobby. Macfarlan's version, called ''A Chemical Museum'' cost 7s.6d. and their portable laboratory was six guineas for the larger size; it contained about a hundred chemicals and some apparatus.(7)

It is natural that pure chemicals for one purpose should serve another, and so it proved when photography was discovered. There is a letter from Herschel to Fox Talbot discussing the use of Gallic Acid – an early item in Morson's list. Henry Claudet credits Morson with the suggestion made to his father, the famous Antoine, that formic acid should be substituted for acetic in his developing solutions.(8)

It was announced by Frederick Scott Archer in 1851 that he had coated a glass plate with iodised collodion which he then sensitised with silver nitrate solution. The effect of this on exposure time was dramatic, a mere fifteen seconds was needed instead of the three minutes in Fox Talbot's calotype process. Incidentally, it was Claudet's opinion that the English were far easier to photograph than his fellow continentals because they were better able to sit still long enough for him to get a sharp image. Morson had been manufacturing collodion for medicinal purposes since 1849 so had developed the experience needed to manipulate the proportions of ether and alcohol to control the physical

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properties of collodion – toughness and flexibility. He had a large trade in both types of collodion.

Products and Firms.

Some measure of the range of items covered by a business can be obtained from catalogues which ran frequently to two or three hundred items, and sometimes considerably more, though a few items could be termed ''on the fringe''. A Plymouth firm, Balkwills, sold its stock in 1836 and one lot consisted of six dozen trusses!(9) Did they suffer so much in Plymouth, was it a job lot, or is it consistent with my suggestion that here was regional business supplying part of the West Country?

Even in 1825, Morson's catalogue included 27 new medicines, mainly alkaloids, potassium iodide and other inorganics which were not yet in the Pharmacopoeia, 40 foreign medicines,and 55 proprietary medicines ranging from Cockle's Compound Antibilious Pills to Whitehead's Essence of Mustard via Savory's Cheltenham Salts and King's Odontalgic.(10) There are several pages of test chemicals and a long list of 52 toilet and miscellaneous items including Candied Horehound, and perhaps a more elegant sounding product imported from France, Eau de Fleur d'Orange Double, no doubt well suited to his Bloomsbury customers.

Although three hundred is a large number of items to keep in stock or have available at short notice, we have to bear in mind that these firms's raison d'etre was service, and that their customers usually had only a short walk to a competitor; not infrequently, if necessity arose, a junior was sent to another firm to obtain the required item.

This was a time of intense competition, both to introduce new products and to provide service, there being much overlap of products between competing firms. This is the reason for avoiding the temptation to categorise firms, as in the 1840s retail, wholesale and chemical manufacturing were carried on in different proportions by many firms , depending on the market and the interests of proprietors. A list of such firms would begin with the names of those who were members of the Pharmaceutical Society together with a few purely chemical manufacturers.

Allen & Hanbury, Evans, Pigeon, Meggeson, Howards, Southalls, Potter & Moore, Thomas Hodgkinson, Prestons, Lescher, Duncan Flockhart, T.& H. Smith, Baiss, Savory, Waugh, Bullock, Cox (a maker of pills in Brighton), May & Baker, Huskisson, and White & Co. were all around in the 1840s. The last three with Howard's and Morson's were probably the backbone of the London chemical trade, just as Albright's and Bagnold's were in Birmingham where Southall's are reputed to have made potassium iodide on a considerable scale. Woolley (Manchester), Clay & Abraham

Ponders End works, 1915. Nitric Acid being poured onto Bismuth ingots with the massive evolution of nitrous fumes. This method was in use until about 1945.

https://doi.org/10.24355/dbbs.084-201803060820

(Liverpool), Mawson (Newcastle upon Tyne), Palk (Exeter), Ferris (Bristol) and Robert Sumner (Manchester) were all firms creating a solid basis for their future trade. I have not attempted to make my list fully comprehensive –it is impossible –and anyway I want to make the point that the expansion of trade still left sufficient room for so many to operate; and most remained to compete vigorously throughout the decade and beyond.

There were failures. Felix Garden who had a large clientele and a reputation as a manufacturer seems not to have exploited a promising position; Redwood, who perhaps wished to emulate his French professional colleagues with their large and successful manufacturing firms, failed both in his retail and chemical businesses.

Naturally one reason for sudden changes in demand was the advent of an epidemic. Daniel Bell Hanbury recorded that in March 1841 influenza was prevalent and kept the Plough Court pharmacy busy.(11) This was a small affair in comparison with the cholera which killed so many in London in October 1848 when Hanbury did not know how they survived some days when ever higher numbers of prescriptions were dispensed.In the earlier epidemic of 1832 their retail trade, excluding prescriptions, reached three times the average sales to customers. No wonder Hanbury wrote, "We can scarcely serve them".

One of the cholera medicines recommended by The Lancet kept manufacturers busy. It contained a grain each of calomel and opium with a drop of creosote massed into a pill and taken every two, three or four hours depending on severity, The Lancet reporting that the addition of the creosote had made the pill successful.(12) Morson had introduced creosote in the early 1830s and creosote pills were in regular use by 1840. There is even one record on 17 February 1838 of creosote being injected, – where and how is not stated nor if the patient survived.

Chloroform, though known years before (Liebig and Soubeiran independently discovered it in 1831) was only manufactured in quantity after Simpson had announced what soon became a famous incident when he anaesthetised himself and two assistants in November 1847. E.Northway Butt claimed that he had supplied the material Simpson used after Waldie's suggestion that it should be tried.(13) Within weeks anaesthetic quality chloroform was manufactured in London by Morson, and in Edinburgh by at least two firms; all subsequently vied with one another to contribute to technical questions of purity and shelf-life.

The 1840s saw constant expansion in the manufacture of alkaloids. Cantharidin was introduced in 1840, aconitine in 1841 and aloin by T. & H.Smith in 1850; Jacob Hulle in London was well known for his strychnine and the Edinburgh firms for their opiates. The latter had the great advantage of purchasing their spirit at two-thirds, and from 1847, half the cost in London owing to duty differences between the two countries.

Although iodine had been discovered in France in 1811, its use grew but slowly.(14) World wide consumption reached thirty tonnes in 1849 in comparison with that of two thousand tonnes in 1960. Dr Andrew Ure, who lived in Bloomsbury Square and was well known to contemporary pharmacists,was the first man in Britain to extract iodine from kelp when he was working in his native Glasgow in 1817. By 1846 there were twenty makers, extracting potash salts as well as iodine. The Exhibition of 1851 had two London firms, Howard's and Huskisson's , and two Glasgow firms among the ten from all over Europe showing iodine products. There was also Hopkin & Williams whose founders were two Morson-trained chemists.

The first known specific reference to the treatment of wounds with tincture of iodine was made in 1839 by John Davies, surgeon to the General Infirmary in Hertford, but it was available in the 1820s so that further research would probably reveal earlier use. Nineteenth century pharmaceutical literature is studded with colourful eponyms of iodine preparations – Bryant's sherry, Churchill's caustic, Lugol's solution, Maude's paint, Morton's fluid, Nourry's wine, Vanier's syrup and Whitehead's varnish being a random selection.

Valerianic acid was another substance made in quantity for the first time in the 1840s. Its salts with zinc, iron and quinine were extensively used as sedatives. Bismuth salts began to be used on a large scale, the sub-nitrate and the carbonate both being used; May & Baker, Howard's and Morson's were the largest makers. Magnesium was another inorganic chemical which was popular. It had had particular attention from Price's before they were incorporated into May & Baker whose main products became camphor, ether, calomel and the salts of ammonia.

Hospitals and dispensaries must not be forgotten when considering the customers of the wholesalers and leading pharmacies. Morson and Bell were both suppliers to Guy's and other London hospitals, one of which,Thomas's, was spending £2,000 a year on medicines.(15)

The records of the London Dispensaries are interesting.(16) These charity supported health centres served great multitudes of what the Victorians called the "deserving poor". The Carey Street Dispensary had no fewer than 1,500 patients a month and the orders for medicines were put out to tender. Wholesaling druggists such as Corbyns, Hodgkinsons, Wilsons and one whose name somewhat unfortunately was Remnant, were frequently successful. They had to remain competitive because their prices were audited to see that they remained so. The cost of supplying small quantities of a wide variety of medicines was high, as it is now, and no chemical manufacturers are recorded as suppliers even when the Dispensary was close at hand though this may have been a commercial understanding between wholesalers and manufacturers. In total the Dispensaries must have provided substantial turnover. In London they were treating 50,000 people, the "respectable impoverished", and a single Dispensary's budget might be as high as £150 or 2.5% of Allen & Hanbury's turnover in medicines.

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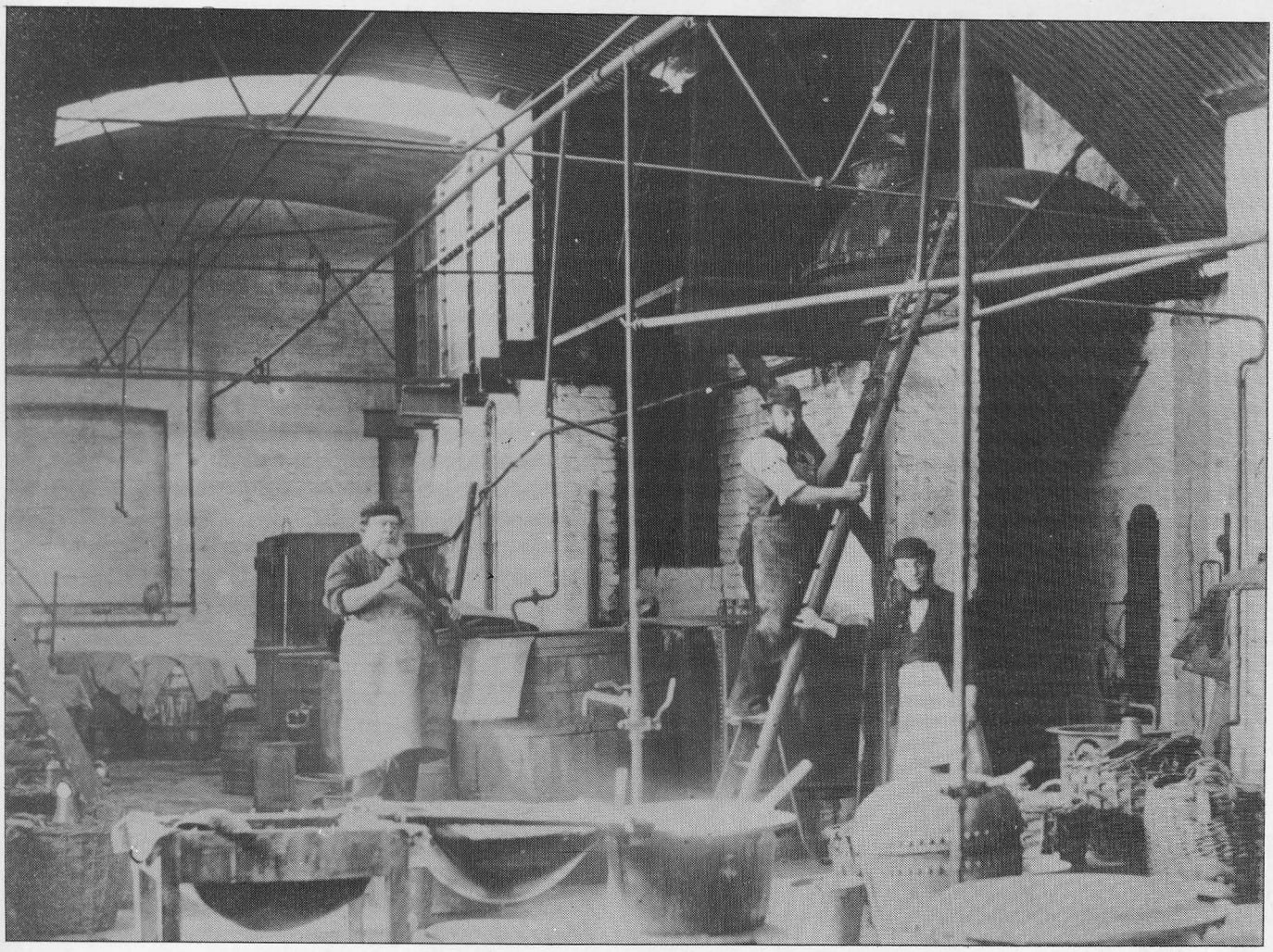

Chloroform manufacture in about 1880 at Homerton.

Factory Methods.

The methods and processes used to produce all these medicines and chemicals were really only a scaled-up version of what went on at the back of the early nineteenth century chemist's shop, and were to remain so for a century. It waas not until the 1930s that chemical engineering began to be applied in the manufacture of pharmaceutical products and fine chemicals.

The 1836 London Pharmacopoeia disapproved of copper and lead utensils including lead-glazed earthenware, and suggested that pewter measures should be replaced by glass. Its views influenced manufacturers to a limited degree. Those of us who had experience of the immediate post- 1939-1945 war equipment can easily imagine what conditions were like with only a few changes in scale and facilities. Open jacketed pans of enamelled or silvered copper had no mechanical aids for stirring or pumping; the former was done manually with wooden blades, and the latter by siphon or a pair of enamelled bowls skilfully used to prevent spillage. Filters were made by tying cotton twill over a wooden frame.

Vacuum concentration and distillation were probably the most sophisticated proceses and equipment in use, but then distillation has a long history. Gullies were non-existent. Water, filtrate and cooling water from still coils were allowed to flow over the flow and find their own way to drains. Fumes were captured in hoods with chimneys, but should they be acid there was no resistant material from which to make the hood, so the operation was moved to the yard where process workers stood to windward until the reaction was complete.

For all such operations, workers wore old clothes with a cotton twill apron, masks,if needed, of wet woollen scarves, thick flannel trousers and clogs. Gloves were of any material to hand.

In some firms, Howard's is an example, there was great secrecy about the processes, a habit which continued into the twentieth century. Some partners controlled the chemical

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operations themselves, doing all the chemical analyses and factory supervision.

The wages paid were rather better than average being about 25s. for a six day week of twelve hours a day. It was hard work but the records of long service in firms like Howard's and of Hanbury's suggest that the conditions were tolerable, better than casual labour in the docks or in agriculture. Many firms copied the policy of Quaker ones elsewhere, and built houses for which only a nominal rent was charged.

Galenical manufacture involved heavy work handling large bales of imported materials such as scammony or other roots. Extracts, sometimes made under vacuum,were on a small scale, and good yields, as with chemicals, relied upon experienced workers whose accumulated skills were expected to be handed on to the next generation.

Packaging operations were really no different from the dispensing counter of a shop except that they were completed in batches by men or occasionally teams of girls and women. Labels, the great majority of which in London were supplied by Silverlock who specialised in "medical labels", were pasted on; bottles were then covered with paper correctly folded and finally wax sealed. Quality control was strict with supervisors watching every operation, in large premises from a little platform so as to see and be seen. The conditions varied from airy packaging rooms to dark corners of a warehouse in which stood a barrel, the drawing off of small quantities, the stoppering and labelling being done as one operation.

Business Affairs.

While all this was going on, the proprietors had plenty to think about. They were usually the contact point between both suppliers and customers which involved them in long and tedious annual journeys. For imported items, it was necessary either to attend the auctions on the exchanges or purchase from the large buyers and accept their assessment of quality and market price. Much business was personal. Hanbury visited Morson at 19,Southampton Row to pay the bill, discuss trade and, no doubt, gossip about Pharmaceutical Society business.

A subject of much concern to manufacturers was that of adulteration. This was both an ethical and a commercial problem, affecting reputation and profit.

An incident of 1849 illustrates the problem. Macfarlan believed that morphine hydrochloride adulterated with salicin had been sold in Scotland.(17) He sent samples to Morson for confirmation of his analysis. Morson knew that several hundred ounces, a large quantity in those days, of low priced material had been sold in London, and wrote that "...this sophisticated preparation is not distinguishable in appearance from the genuine." His greater skill in analysis, however, revealed that the adulterant was sugar, (much more difficult to detect) both in the samples sent by Macfarlan and the ones in London. The row between customers and suppliers, who themselves may have been deceived, went on for several months in the correspondence columns of the pharmaceutical journals of London and Paris.

The payment of accounts was a long-term affair, twelve months credit being normal. Isaiah Deck, a well-known Cambridge pharmacist and scientist, paid Morson according to his ledger in March 1847 for goods supplied in April and May 1846. There were also bank failures to worry about for these were not infrequent. Cash had to be taken to the bank, and wage money fetched when needed. Proprietors kept their own accounts, checked on the assistants on the counter and spent time in the counting house checking invoices and paying bills. They wrote all their firm's correspondence.

Advertising was usually done through agents who submitted copy for approval and then placed it in the newspapers. After it started in July 1841, Punch was popular with proprietary medicine vendors, as well as other weekly papers.

For many firms, turnover had remained remarkably steady until the 1840s. Howards had a static turnover until 1837 when it reached £34,000 mainly in sales of citric acid, iodides, bromides and quinine; all the other alkaloids for compounding or re-sale seem to have been purchased.(18) By 1840, their sales had increased only to £40,000. Then, when their quinine sales rose, they became virtually a one-product company. Quinine provided well over 50% of their business throughout the 1840s, during which turnover was nearly doubled. The success of quinine led to the manufacture of a large number of its salts, Morson listing no fewer than twelve. By contrast with Howard's, Hanbury's sales did not rise at all until very late in the decade.

Hanbury's sales figures included their substantial business in property, stock and even clothing. For 1840. their turnover was £16,072 of which £6,716 was retail including prescription items which were 40% of the total. Home trade showed a gross profit of 100%. This is a good indication of the importance of over-the-counter sales of items other than prescription medicines. The large difference betwen the total and the counter sales is partly due to exports to North America, the West Indies, even the Russian colonies from whom they received a substantial order in December 1842.

With very few figures to provide pointers towards Morson's level of turnover, it is possible, though hazardous, to guess at his sales. My "guesstimate" suggests that during this decade his sales rose from under £10,000 to approaching £20,000. By using the Retail Price Index, this gives a figure, however inexact, of £750,000 in today's money. By the end

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of the decade, Morson was selling over five hundred different "lines", and these were nearly all specialist chemicals. It is likely therefore, that firms such as Savory & Moore, Bell, and Squire, whose retail and wholesale trade were so large, had perhaps a thousand "lines".

With expanding businesses, static wages and small overheads, profit must have been good. Evans,Lescher cultivated trade in Wales and the North West, and then expanded enough to set up a branch in 1837 in Liverpool. In 1848, they made the whole range of galenicals there. This is only one of the many examples of branches or new firms starting in all parts of the country.

An overall measure of the size of one part of the trade is provided by the revenue derived from Medicine Duty stamps. In 1841, the 6,000 licensed vendors paid £30,000 which at one-eighth rate of duty means that £240,000 worth was sold. (The corrected figure for today gives nearly £7 million.)

With profits high, the proprietors lived well. We know how Jacob Bell's good living shocked his strict Quaker father, and his lavish entertainment at Langham Place was as famous as his art collection. The Savorys' style included a town house, a large country house in several acres of Home Counties' land, and much good living. The Hanburys were more modest, but their house was large with a commensurate staff, garden and gardeners. They also seem to have been particularly fond of extensive trips to the south coast, sometimes spending six weeks as a family in the Isle of Wight with Daniel Bell;and son Daniel returning for a few days to London to see how their firm was getting on.

Morson was somewhat restrained (or had less disposable income) and lived in an apartment over the shop with a country house at Hornsey. This house was semi-detached from the cottage his foreman occupied in order to oversee the factory at the bottom of the garden and the production of medicinal plants. On his son's marriage in 1851, he moved to Queen's Square where he had a house well filled with furniture and pictures, as well as his own laboratory.

These examples of the most successful are an indication of how prosperous a large number of manufacturing pharmacists had become. All of which was due to an enterprising and resourceful attitude which exploited anything new and raised standards of production and presentation. Perhaps the three factors which helped most to create this opportunity were, the increasing standard of living of growing urban populations, scientific advances in medical chemistry, and the beginning of an understanding of disease and hygiene.

Bell, Morson, their doctor and pharmacist colleagues throughout the country understood that they were taking part in a revolution in medicine. They all somehow found time to attend newly formed scientific groups, local, provincial and national, helping to inaugurate societies such as the Cavendish, the Microscopical and the Royal College of Chemistry. They had time for charitable and voluntary work amidst active social and family lives. At the same time working at setting up their professional body and fighting the medical establishment for its survival. All this intense activity surely justifies Leslie Matthews calling the decade "the tempestuous 1840s."

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Jewish apothecaries and surgeons in eighteenth century London.

By Dr J.Burnby.

Although Jews were re-admitted to England in the time of Cromwell they were few in number until the eighteenth century, and immigrants can not have found it easy to establish themselves in the towns. Since the early fourteenth century, not only for merchants but also for the lesser craftsmen and traders, it became increasingly desirable to be enfranchised. In becoming a citizen or freeman you gained political rights such as the vote in your ward or district, and thus a say in the city's governance. It was also a passport to economic privilege for one had gained the right to buy in the city's markets with the intention of re-selling direct to the public. In return the citizen had to swear loyalty to the

https://doi.org/10.24355/dbbs.084-201803060820

king and to the town's civic authorities, and that he would bear his just proportion of the taxes and public duties.

In order to attain this desirable estate evidence had to be given of having a good reputation and of being capable of earning a livelihood. It became the custom to take up citizenship through one of the organised city guilds or companies, usually by apprenticship, the master's word being sufficient sponsorship. Membership of a guild could also be obtained by redemption, that is by purchase, but the "fine" or entrance fee was always considerably higher than if the "freedom", as it was termed, had been granted by reason of "servitude" or apprenticeship. There was also in some companies, for example the Apothecaries' Society, the necessity of taking an examination in order to check the applicant's professional competence.

There was not only the goal of obtaining citizenship, but as each guild was formed then it was given monopolistic rights over all those who practised that particular craft or calling. In theory no one was allowed to practise, for example, as a pewterer in London and its environs unless he were a member of the London Company of Pewterers. Likewise when in 1540 the dual company of the Barbers and the Surgeons was formed then all who practised barbery or surgery in the City and for one mile around, (later increased to three miles, and then seven) had to be free of that Company.

For certain groups of people this could present a problem in as much they had to be "sworn", that is they had to take an oath on the Bible. Quakers refused to make an oath, believing that Holy Writ expressly forbade it, whilst the Jews, not surprisingly, had certain reservations in the matter of the Christians' Bible. Happily as the eighteenth century progressed greater tolerance was displayed. The Quakers were allowed to "make their Affirmation", this now being regarded as sufficient, and the Jewish problem was overcome in the following manner as may be seen in the London Barber Surgeons' Admission records to be found in the Guildhall Library. (MS 5265/5, f.32r.)

"4 May 1736. Abraham Dias Delgardo, surgeon, (a Jew) was admitted to the freedom by redemption for £10 10s. and was sworn (upon the old testament)."

The Inland Revenue apprenticeship Records, to be found at the Public Record Office at Kew, show that by the last quarter of the eighteenth century Jewish surgeons and apothecaries were well established and taking apprentices. In 1772 Moses Torres, apothecary, of Duke's place took as his apprentice Solomon de Castro, whose family like many others had hailed from the Iberian peninsula, for seven years, charging a premium of £50.(MS. I.R./1/27) Young Solomon was to be followed by Abraham Shannon in 1783 but on this occasion Torres was content with £26 5s.0d. Nor was Moses Torres alone. In 1781, Moses Garcia also of Duke's place, surgeon, agreed to take Benjamin Lara for the usual seven years, and a £60 premium. (M.S. I.R./1/31) The following year Emanuel Pacifico became the apprentice of Isaac Ruiz Dovalle, apothecary of nearby Shoemakers' Row, for five years and nine months. Dovalle's demands were modest being only £15.

Duke's Place just to the north of Aldgate was a Jewish enclave in London, and the Spanish and Portuguese Synagogue is to be found there to this day. Both Abraham Shannon and Emanuel Pacifico practised there after their apprenticeships had finished and took apprentices themselves. Daniel Baruh was bound to Shannon in 1797, and Aaron Coronel to Pacifico who had moved to nearby Bury Street, in 1804. (MS.I.R./1/37, 7 years, £42; I.R./1/40, 5 years, £15.) Both Baruh and Pacifico were to proceed to obtain M.D.s of Aberdeen in 1816 and 1817 respectively.

At least two men who proclaimed themselves to be Members of the Corporation of Surgeons of London, Joshua van Oven and Benjamin Da Costa, trained apprentices. The binding of Jacob Abraham was signed in 1788 and Judah Israel's in 1791.(Benjamin Da Costa had been an apprentice in 1783 for seven years to Abraham Martin an apothecary in the traditional Jewish area of Whitechapel). By 1803 Moses Garcia, still of Duke's Place, had a partner, Dias, and they were taking on Mathew Mendes for seven years at a premium of £45. It is interesting to note that they termed themselves apothecaries on this occasion. Unless a man was a so-called "pure" surgeon, working in one of the hospitals, there was little to distinguish the work of an apothecary from that of a surgeon, and the two titles were frequently used interchangeably. It is probable that the training of Solomon Azuly's two apprentices, Isaac Martin and Mordecai Levy, both bound in 1797, differed little from that of Benjamin Lara's whose master on that occasion had called himself a surgeon. In due course the title "apothecary" died out, to be replaced for a period by "surgeon", and finally by the one still used today,that of "general practitioner".

The apprentices were not always bound to one of their co-religionists, as can be seen in the case of Samuél H.Israel who had Thomas Blizard of America Square, which did not lie far away from Duke's Place, as his apprentice master. Blizard was a "pure" surgeon of considerable renown who, like his uncle Sir William Blizard, operated at the London Hospital, and charged accordingly. His fee was 200 guineas as it was to be when he took young Henry Hammond of Edmonton eight years later in 1810. (MS I.R./1/39, 6 years) Indeed he probably thought this was modest because the parents of John Lawrence in 1803 had to find 400 guineas!

It can be seen that by 1800 the Jews were,in spite of restrictions against entering the English universities, well integrated into the medical scene.

https://doi.org/10.24355/dbbs.084-201803060820

Robert Wooffendale, chemist, druggist and dentist: the making of a reputation.

By Dr Christine Hillam.

Robert Wooffendale (1742–1828), chemist, druggist and dentist, has been the subject of a number of papers over the past half century and more, the principal accounts of his life (1)being based on the lecture delivered to students at Baltimore College of Dentistry in 1848 by C.O.Cone,(2) who in turn, is said to have used information handed down through Wooffendale's son John. The failure of subsequent writers to return to primary sources has led to Wooffendale acquiring a somewhat inflated reputation.

Wooffendale was born in Sheffield in 1742 and, apparently unknown to American writers, entered an apprenticeship of seven years on 6 December 1757 to William Bettinson, a druggist in Sheffield, for the consideration of £52.(3) After only five of his seven years traing, he moved to London to work for the druggists White and Gipps, both of whom may well have worked in the laboratory of the Society of Apothecaries and who, by the 1760s, appear to have been pharmaceutical manufacturers on a modest scale. Gipps was the son of an apothecary and Bettinson and White had both served apprenticeships to apothecaries; hence it seems probable that Wooffendale would have acquired some rudimentary medical knowledge by this date. In 1755 he began some kind of association with Thomas Berdmore whose dental practice in Racquet Court was probably the foremost of the day in London. In 1766 Berdmore was appointed Operator for the Teeth and two years later, in 1768, published his famous book, *On the Teeth and Gums.* The result of the meeting, said Cone, was that Berdmore agreed to instruct Wooffendale in dentistry, but the latter had to execute a bond of £500 not to practise within fifty miles of London during Berdmore's lifetime.

Wooffendale's time with Berdmore was short, for it seems that in July or August 1766 he went to Sheffield to dispose of property left him by his father, and by 30 October had landed in New York. Here he advertised himself as " Surgeon Dentist ... (who was instructed by Thomas Berdmore, Esq., Operator for the Teeth to his present Britanik Majesty)", offering to "perform all Operations upon the Teeth, Gums, Sockets, and Palate: Likewise fixes artificial Teeth."

He remained in New York until the end of March 1767, a total stay of five months. From April to July he visited Philadelphia, again using Berdmore's name. Back in New York in August, he encountered William Walton for whom he made a set of artificial teeth and whose niece, Miss Stephenson, he married on 17 September. By 25 March 1768 Wooffendale had set sail for Bristol with his wife, not to return to America for many years. All writers have been aware that Wooffendale's first visit to America of little more than eight months was somewhat short for one who came to be seen as a pioneer of dentistry in the States and the first properly trained dentist to practise there. Cone suggests that there was insufficient demand for his services.

Back in England in 1768, Wooffendale returned to Sheffield. Here he opened what Cone (1848) described as "an apothecary shop", practising dentistry when opportunity arose, as on visits to York and Manchester.(4) But all did not go quite so smoothly for Mr Wooffendale as legend would have it; primary sources reveal that his continued use of Berdmore's name led to his erstwhile teacher placing an advertisement in the *York Courant* for 26 January 1773 in which he states that Wooffendale had left his service within six months and so had certainly not received enough training from him to make him competent. The bond is revealed as £1,000. However, the incident did not deter Wooffendale from using Berdmore's name for the rest of his career.

After only a few years Wooffendale moved to Liverpool where he is listed in trade directories between 1777 and 1787. It was here, in 1783, that he produced his *Practical Observations on the human Teeth.*

The late 1780s sees the beginning of a period in Wooffendale's life where family tradition and reality are most in conflict. Cone tells us that in 1789 news reached Wooffendale of Berdmore's death and, with the encouragement of Berdmore's former patients and now released from his bond, he moved to London to establish a highly successful practice in Dover Street, where he remained until his return to America in 1795. (In fact, primary sources reveal him as being in London from at least January 1788 and contemplating returning to Liverpool in 1791.)(5) During this period he is said to have declined an appointment as dentist to the Prince of Wales, the future George IV. Later authors have accepted and repeated these statements.

The English sources would suggest a rather different story. Firstly, Thomas Berdmore died in 1785 and it scarcely seems credible that it took as long as four years for the news to reach Liverpool when announcements appeared at the time in the press of such towns as Birmingham and Nottingham. Nor does it seem at all likely that Berdmore's former patients would even have remembered Wooffendale but would have transferred their patronage to Berdmore's successors in the practice. As for the tale of the royal appointment, Charles Dumerge took up this post in 1785 when Wooffendale was living in Liverpool and still held it in 1814.

On his return to America in 1795, Wooffendale practised briefly in New York before retiring to a farm in Jamaica, Long Island, in 1797. He is said to have remained there

https://doi.org/10.24355/dbbs.084-201803060820

until his death in 1828, although evidence suggests that his stay may not have been continuous.

Cone remarks that Wooffendale had not made any marked improvement or discovery in any department of dentistry, yet by the 1940s he had acquired the reputation of being "perhaps the best practical dentist of his day", "an early pioneer" and the first trained dentist in America. This position may perhaps have come about more in the interests of establishing respectable roots for dentistry in America than from a re-examination of primary sources, which reveal Wooffendale as somewhat economical with the truth.

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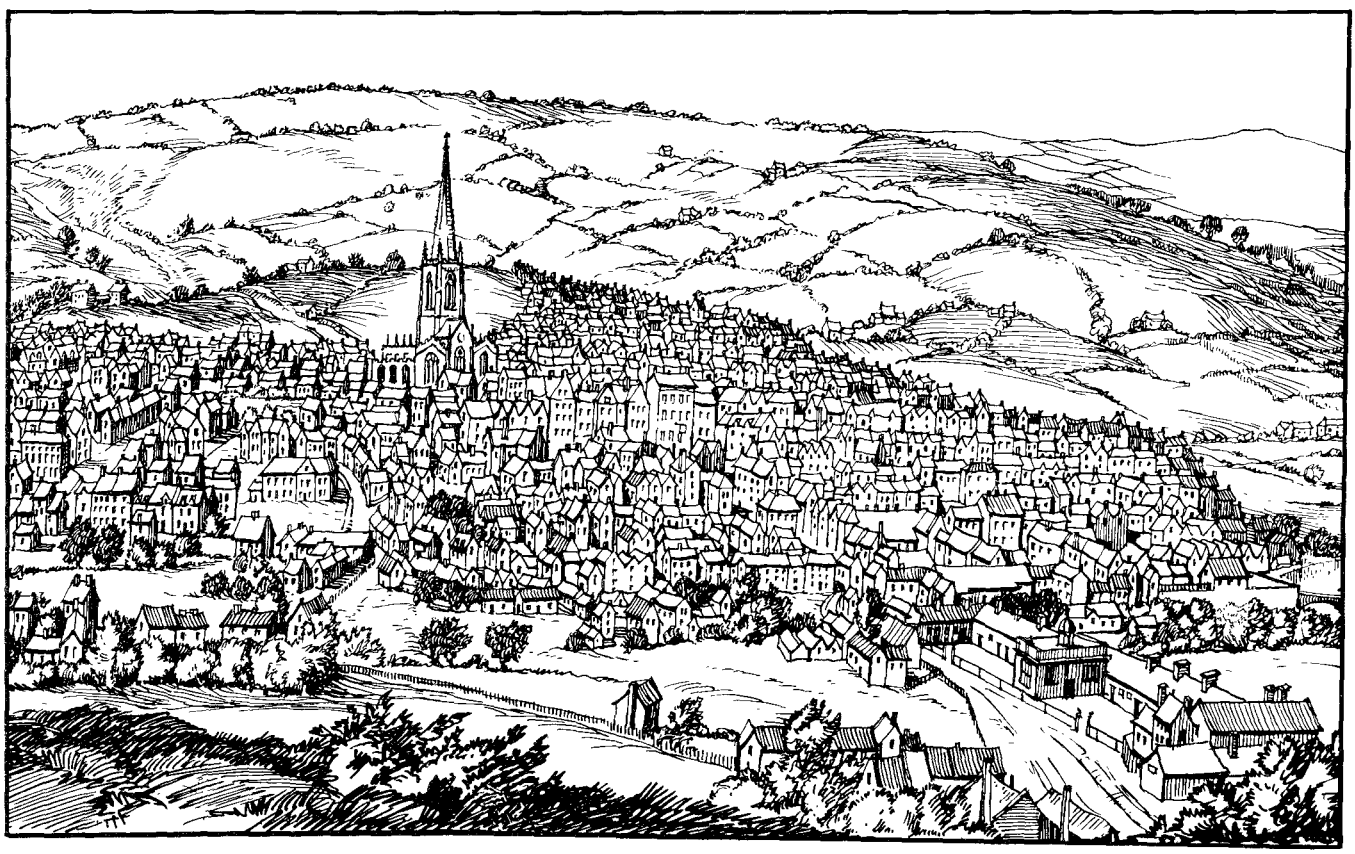
Abstract of the paper delivered to the Historical Session of the 1991 British Pharmaceutical Conference.



Sheffield in the mid 18th century. (adapted from Samual and Nathaniel Buck's "East Prospect of Sheffield")

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Typeset by: Action Labels Ltd., Ashbourne, Derbyshire. (0335) 300425
Printed by: Inprint Services, Ashbourne, Derbyshire. (0335) 44083

https://doi.org/10.24355/dbbs.084-201803060820